

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 4,5 a  
 Edition : 24.07.92  
 Replaces : 05.92  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 287  
 Injection pump  
 Pump designation : PES6MW100/320RS1219  
 EP type number : 0 413 406 209  
 Governor  
 Governor design. : RQV350...1100MW118  
 Governor no. : 0 420 083 249

Customer-spec. information  
 Customer : VME

Engine : TD 61 CB

1st version kW : 115.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 9.00...12.00

A01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.00...9.40

2nd speed rpm : 1150

travel mm : 8.70...8.90

3rd speed rpm : 725

travel mm : 3.70...4.30

4th speed rpm : 350

travel mm : 1.20...1.60

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.60

Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.10...1.00

#### LOW IDLE 1

Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.6

#### Testing:

Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 350  
Rack travel in mm : 5.50...5.70  
Rack travel in mm : 2.00  
Speed rpm : 460...520

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 700  
Rack travel in m: 12.40...12.60  
3rd speed rpm : 1025  
Rack travel in m: 11.80...12.10  
4th speed rpm : 900  
Rack travel in m: 12.20...12.50

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 700  
Pressure hPa : 670  
Rack travel mm : 12.10...12.20

#### Measurement

Speed 1/min : 700

1st pressure hPa : -  
Rack travel in m: 9.80...9.90  
2nd pressure hPa : 250  
Rack travel in m: 10.10...10.40  
3rd pressure hPa : 1000  
Rack travel in m: 12.40...12.60

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

A02

Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm3/ : 122.5...125.5  
1000 s: (120.0...128.0)  
Spread cm3 : 3.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm3/ : 77.0...79.0  
1000 s: (75.0...81.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 100

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...140.0  
1000 s: (117.0...143.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.50...5.70  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC  
Edition : 31.07.92  
Replaces : 07.92  
Test oil : ISO-4113  
  
Combination no. : 0 403 446 308  
  
Injection pump  
Pump designation : PES6MW100/320RS1198  
EP type number : 0 413 406 188  
Governor  
Governor design. : RQV350...1200MW46-47  
Governor no. : 0 420 083 277

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.5  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
: (3.20...3.40)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.50...11.60

Del. quantity cm<sup>3</sup>/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.80...10.20

2nd speed rpm : 1250

travel mm : 7.90...8.10

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del. quantity : 122.0...124.0

1000 : (120.0...126.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 102...110

Testing:

1st rack travel in: 10.50  
Speed rpm : 1290...1310  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.4

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in mm : 8.70...8.80  
2nd pressure hPa : 245  
Rack travel in mm : 9.80...9.90  
3rd pressure hPa : 395  
Rack travel in mm : 10.90...11.30

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 118.5...122.5  
1000 s: (116.5...124.5)

Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 68.0...71.0  
1000 s: (66.0...73.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50  
Speed rpm : 1290...1310

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...170.0  
1000 s: (125.0...175.0)  
Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1819888C91  
Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : FIA  
Edition : 31.07.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 403 446 313  
  
Injection pump  
Pump designation : PES6MW100/72ORS1228  
EP type number : 0 413 406 218  
Governor  
Governor design. : RQV325...1350MW127K  
Governor no. : 0 420 083 988

Customer-spec. information  
Customer : IVECO-FIAT

Engine : 8050.45.6200

1st version kW : 167.0  
Rated speed : 2700

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm<sup>3</sup>/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.5...6.7

Del.quantity cm<sup>3</sup>/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1400  
travel mm : 10.00...10.40

2nd speed rpm : 825  
travel mm : 4.90...5.10

3rd speed rpm : 400  
travel mm : 2.90...3.50

4th speed rpm : 325  
travel mm : 1.50...1.90

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 1200  
Del.quantity : 115.5...117.5  
1000 : (113.5...119.5)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 120...128

Testing:

1st rack travel in: 12.10  
Speed rpm : 1420...1430  
2nd rack travel in: 4.00  
Speed rpm : 1515...1545  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 78...86  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.6

Testing:

Speed rpm : 200  
Minimum rack travel: 10.00  
Speed rpm : 325  
Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 700  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 1200  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 900  
Rack travel in m: 12.60...12.80  
4th speed rpm : 1350  
Rack travel in m: 13.10...13.30

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 1200  
Pressure hPa : -  
Rack travel mm : 8.90...9.10

Measurement

Speed 1/min : 1200

1st pressure hPa : 450  
Rack travel in m: 11.50...11.60  
2nd pressure hPa : 800  
Rack travel in m: 12.50...12.80  
3rd pressure hPa : 1200  
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 1200

Del.quantity cm3/ : 120.0...123.0  
1000 s: (117.5...125.5)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 71.0...73.0  
1000 s: (69.0...75.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1420...1430

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 40.0...60.0  
1000 s: (37.0...63.0)

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Del.quantity cm3/ : 20.0...24.0  
1000 s: (17.5...26.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM  
Edition : 31.07.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 466 129

Injection pump  
Pump designation : PES6MW100/120RS1137-  
2

EP type number : 0 413 406 180

Governor

Governor design. : RSV550...1100MW2A319  
-18

Governer no. : 0 420 085 205

## Customer-spec. information

Customer : CUMMINS

Engine : 6 CTA

1st version kW : 179.0

Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

A07

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm : 6.2...6.4

Del.quantity cm3/ : 1.8...2.2

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 130.5...132.5

1000 : (128.5...134.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 84...92

Setting point:

Speed rpm : 800  
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.90  
Speed rpm : 1170...1180  
2nd rack travel in: 4.00  
Speed rpm : 1220...1230  
3rd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 65...73  
Setting point w/out bumper spring  
Speed rpm : 550  
Rack travel in mm : 5.8

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 550  
Rack travel in mm : 5.70...5.90  
Rack travel in mm : 2.00  
Speed rpm : 520...580

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...150.0  
1000 s: (127.0...153.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550  
Rack travel in mm : 6.20...6.40  
Del. quantity cm<sup>3</sup>/ : 18.5...22.5  
1000 s: (16.0...25.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: CUM #3923540

Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,

A08

cylinder 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CUM  
Edition : 31.07.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 466 130

Injection pump  
Pump designation : PES6MW100/120RS1137-  
2

EP type number : 0 413 406 180

Governor

Governor design. : RSV550...1100MW2A335  
-4

Governor no. : 0 420 085 206

## Customer-spec. information

Customer : CUMMINS

Engine : 6 CTA

1st version kW : 179.0

Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

A09

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.90...13.00

Del. quantity cm<sup>3</sup>/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm : 6.2...6.4

Del. quantity cm<sup>3</sup>/ : 1.8...2.2

100 s: (1.6...2.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 130.5...132.5

1000 : (128.5...134.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 84...92

Setting point:

Speed rpm : 800  
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.90  
Speed rpm : 1170...1180  
2nd rack travel in: 4.00  
Speed rpm : 1220...1230  
3rd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever  
position degrees: 65...73  
Setting point w/out bumper spring  
Speed rpm : 550  
Rack travel in mm : 5.8

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 550  
Rack travel in mm : 5.70...5.90  
Rack travel in mm : 2.00  
Speed rpm : 520...580

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.10...12.30  
2nd pressure hPa : 475  
Rack travel in m: 12.40...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500  
Del.quantity cm3/ : 120.0...122.0  
1000 s: (118.0...124.0)

BREAKAWAY

1st version

A10

1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (127.0...153.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550  
Rack travel in mm : 6.20...6.40  
Del.quantity cm3/ : 18.5...22.5  
1000 s: (16.0...25.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: CUM #3923541

Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE5,681  
Edition : 24.07.92  
Replaces : 11.91  
Test oil : ISO-4113

Combination no. : 0 403 474 021

Injection pump  
Pump designation : PES4MW100/720RS1181  
EP type number : 0 413 404 107  
Governor  
Governor design. : RSV400...1000MW1A348  
Governor no. : 0 420 085 183

Customer spec. information  
Customer : LIEBHERR

Engine : D914T

1st version kW : 100.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.90

Del. quantity cm<sup>3</sup>/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.5

Del. quantity cm<sup>3</sup>/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del. quantity : 130.0...132.0

1000 : (128.0...134.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 104...112

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

### Testing:

1st rack travel in: 9.70  
Speed rpm : 1020...1030  
2nd rack travel in: 4.00  
Speed rpm : 1060...1075  
3rd rack travel in: 4.00  
Speed rpm : 1070...1085  
4th rack travel in: 1200  
Speed rpm : 0.30...1.70

### LOW IDLE 1

Control lever  
position degrees: 76...84  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.7

### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.50...6.00  
Rack travel in mm : 2.00  
Speed rpm : 450...510

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.70...10.90  
2nd speed rpm : 500  
Rack travel in m: 10.70...10.90  
5th speed rpm : 450  
Rack travel in m: 11.90...12.10

Aneroid/Altitude  
Compensator Test

### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.20...10.40

### Measurement

Speed 1/min : 500

1st pressure hPa : 530  
Rack travel in m: 10.50...10.60  
2nd pressure hPa : 1000  
Rack travel in m: 10.70...10.90

### FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 1000  
Speed rpm : 500  
Del.quantity cm3/ : 123.5...126.5  
1000 s: (121.0...129.0)

Spread cm3 : 3.50  
1000 s: (7.0)  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 130.0...133.0  
1000 s: (127.5...135.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 109.0...111.0  
1000 s: (107.0...113.0)

### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1020...1030

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...140.0  
1000 s: (127.0...143.0)  
Rack travel in mm : 19.00...21.00

### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6.00...6.50  
Del.quantity cm3/ : 20.0...24.0  
1000 s: (17.5...26.5)  
Spread cm3 : 3.50  
1000 s: (5.00)

### Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 24.07.92  
Replaces : 02.92  
Test oil : ISO-4113  
  
Combination no. : 0 403 476 116  
  
Injection pump  
Pump designation : PES6MW100/720RS1131  
EP type number : 0 413 406 123  
Governor  
Governor design. : RSV350...1300MWOA329  
-14  
Governor no. : 0 420 085 192

Customer-spec. information  
Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 10.50...10.60

Del. quantity cm<sup>3</sup>/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.5

Del. quantity cm<sup>3</sup>/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 800

Del. quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 110...118

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.50

Speed rpm : 1330...1335 \*

2nd rack travel in: 4.00

Speed rpm : 1410...1423  
4th rack travel in: 1550  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 75...83  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.2

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 350  
Rack travel in mm : 5.00...5.50  
Rack travel in mm : 2.00  
Speed rpm : 420...480

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1280  
Rack travel in m: 10.50...10.60  
2nd speed rpm : 800  
Rack travel in m: 11.20...11.30  
3rd speed rpm : 1100  
Rack travel in m: 10.80...11.00

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.20...9.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 470  
Rack travel in m: 10.50...10.70  
3rd pressure hPa : 800  
Rack travel in m: 11.20...11.30

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 800  
Speed rpm : 800  
Del.quantity cm3/ : 88.0...91.0  
1000 s: (85.5...93.5)

Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 49.0...51.0  
1000 s: (47.0...53.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.50  
Speed rpm : 1330...1335

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 78.0...88.0  
1000 s: (75.0...91.0)

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.00...5.50  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

#### Remarks:

Test hydr. locking device for starting  
with 800...1200 hPa air pressure.

\* Read off speed set under 1.  
Add 80...88 min<sup>-1</sup> to this speed. The  
control-rod travel under 2. must be  
attained with the calculated speed  
profile.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC  
Edition : 24.07.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 403 476 121

Injection pump  
Pump designation : PES6MW100/320RS1198-  
1

EP type number : 0 413 406 211

Governor

Governor design. : RSV350...1250MW2A347-  
-1

Governor no. : 0 420 085 199

## Customer-spec. information

Customer : NAVISTAR

Engine : DT-466

1st version kW : 172.0

Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
: (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 13.2...13.4

100 s: (13.0...13.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 132.5...134.5

1000 : (130.5...136.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800  
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.10  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1345...1355  
3rd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.0

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 350  
Rack travel in mm : 4.90...5.10

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.20...9.30  
2nd pressure hPa : 260  
Rack travel in m: 10.20...10.30  
3rd pressure hPa : 500  
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 80.5...84.5  
1000 s: (78.5...86.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 160.0...180.0  
1000 s: (155.0...185.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 4.90...5.10  
Del.quantity cm3/ : 15.5...19.5  
1000 s: (13.0...22.0)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

: IHC #1819527C91

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 21.05.92  
Replaces : 03.92  
Test oil : ISO-4113

Combination no. : 9 400 087 429

Injection pump  
Pump designation : PES6P120A720RS3256-3  
EP type number : 9 400 087 079  
Governor  
Governor design. : RQV300...1300PA963  
Governor no. : 9 420 080 283

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 156.6  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 4.80...5.40

Del. quantity cm<sup>3</sup>/ : 1.7...2.0

100 s : (1.4...2.3)

Spread cm<sup>3</sup> : 0.2

100 s : (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.5

Del. quantity cm<sup>3</sup>/ : 1.0...1.6

100 s : (0.7...1.9)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 660  
travel mm : 3.80...4.30

3rd speed rpm : 960  
travel mm : 5.20...5.70

4th speed rpm : 1357  
travel mm : 8.00...8.50

5th speed rpm : 1492  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1

Speed rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 107...115

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1420...1450  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 11.80...12.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.70  
2nd pressure hPa : 300  
Rack travel in m: 10.10...10.30  
3rd pressure hPa : 600  
Rack travel in m: 11.30...11.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 1300  
Del.quantity cm3/ : 157.0...159.0  
1000 s: (154.0...162.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 141.0...145.0  
1000 s: (138.0...148.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 56.0...58.0  
1000 s: (53.0...61.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0  
1000 s: (96.0...124.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.50  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.0...19.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

Start-of-delivery blocking takes place  
with piston stroke 4.05 mm (as of BCD)  
at no. 1 cylinder.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 21.05.92  
Replaces : 03.92  
Test oil : ISO-4113

Combination no. : 9 400 087 430

Injection pump  
Pump designation : PES6P120A72ORS3256-3  
EP type number : 9 400 087 079  
Governor  
Governor design. : RQV300...13G0FA963-1  
Governor no. : 9 420 080 284

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 171.5  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
(2.95...3.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 660  
travel mm : 3.80...4.30

3rd speed rpm : 960  
travel mm : 5.20...5.70

4th speed rpm : 1357  
travel mm : 8.00...8.50

5th speed rpm : 1492  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

RATED SPEED

1st version

Control lever  
position degrees: 107...115

Testing:

1st rack travel in: 11.60  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1430...1460  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 73...81

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 12.60...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.70  
2nd pressure hPa : 300  
Rack travel in m: 10.10...10.30  
3rd pressure hPa : 700  
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

A20

1st version

Aneroid pressure h: 1200  
Speed rpm : 1300  
Del.quantity cm3/ : 177.0...179.0  
1000 s: (174.0...182.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 159.0...163.0  
1000 s: (156.0...166.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 56.0...58.0  
1000 s: (53.0...61.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 100.0...120.0  
1000 s: (96.0...124.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.50  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.0...19.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

Start-of-delivery blocking takes place  
with piston stroke 4.05 mm (as of BCD)  
at no. 1 cylinder.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 21.05.92  
Replaces : 04.92  
Test oil : ISO-4113

Combination no. : 9 400 087 431

Injection pump  
Pump designation : PES6P12DA720RS3256-2  
EP type number : 9 400 087 080  
Governor  
Governor design. : RQV300...1300PA963-2  
Governor no. : 9 420 080 285

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 141.7  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
(2.95...3.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 660  
travel mm : 3.80...4.30

3rd speed rpm : 960  
travel mm : 5.20...5.70

4th speed rpm : 1357  
travel mm : 8.00...8.50

5th speed rpm : 1492  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 9.60  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1415...1445  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 10.70...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.70  
2nd pressure hPa : 250  
Rack travel in m: 9.90...10.10  
3rd pressure hPa : 340  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 1300  
Del.quantity cm3/ : 140.0...142.0  
1000 s: (137.0...145.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 115.0...119.0  
1000 s: (112.0...122.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 56.0...58.0  
1000 s: (53.0...61.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.60  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.50  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.0...19.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

Start-of-delivery blocking takes place  
with piston stroke 4.05 mm (as of BCD)  
at no. 1 cylinder.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 21.05.92  
Replaces : 04.92  
Test oil : ISO-4113

Combination no. : 9 400 087 450

Injection pump  
Pump designation : PES6P120A720RS3256-2  
EP type number : 9 400 087 080  
Governor  
Governor design. : RQV300...1300FA978  
Governor no. : 9 420 080 296

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 126.8  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 20.00...21.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 660  
travel mm : 3.80...4.30

3rd speed rpm : 960  
travel mm : 5.20...5.70

4th speed rpm : 1357  
travel mm : 8.00...8.50

5th speed rpm : 1492  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del.quantity : 17.0...20.0  
1000 : (14.0...23.0)  
Spread cm3 : 2.00  
1000 : (3.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 106...114

Testing:  
1st rack travel in: 9.60  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1415...1445  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 10.70...10.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.80...10.10  
2nd pressure hPa : 350  
Rack travel in m: 10.10...10.30  
3rd pressure hPa : 420  
Rack travel in m: 10.40...10.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 1300  
Del.quantity cm3/ : 140.0...142.0  
1000 s: (137.0...145.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm3/ : 115.0...119.0  
1000 s: (112.0...122.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 63.0...65.0  
1000 s: (60.0...68.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.60  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...110.0  
1000 s: (86.0...114.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.50  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.0...19.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

Start-of-delivery blocking takes place  
with piston stroke 4.05 mm (as of BCD)  
at no. 1 cylinder.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 10,1 e  
 Edition : 24.07.92  
 Replaces : 7.92  
 Test oil : ISO-4113  
 Combination no. : 9 400 231 013  
 Injection pump  
 Pump designation : PES6P110A720RS379  
 EP type number : 9 410 231 001  
 Governor  
 Governor design. : RSV400...1050PO/457D  
 R  
 Governor no. : 9 420 234 015

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6619 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 457 413 010  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85  
 : (2.70...2.90)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 10.20...10.30  
 Del.quantity cm3/ : 13.5...13.7  
 100 s: (13.3...13.9)  
 Spread cm3 : 0.4  
 100 s: (0.7)

2nd speed rpm : 400.0  
 Rack travel in mm : 5.8...6.0  
 Del.quantity cm3/ : 2.1...2.7  
 100 s: (1.9...2.9)  
 Spread cm3 : 0.4  
 100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 900  
 Del.quantity : 135.0...137.0  
 1000 : (133.0...139.0)  
 Spread cm3 : 4.00  
 1000 : (7.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 43...51

Testing:  
 1st rack travel in: 9.20  
 Speed rpm : 1095...1105  
 3rd rack travel in: 6.20  
 Speed rpm : 1135...1165  
 4th rack travel in: 1200

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.4

#### Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 400

Rack travel in mm : 5.30...5.50

Rack travel in mm : 2.00

Speed rpm : 520...530

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 10.20...10.30

2nd speed rpm : 630

Rack travel in m: 10.80...11.00

Aneroid/Altitude

Compensator Test

#### 1st version

Setting

Speed rpm : 550

Pressure hPa : 900

Rack travel mm : 10.80...11.00

#### Measurement

Speed 1/min : 550

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 373

Rack travel in m: 10.50...10.60

3rd pressure hPa : 247

Rack travel in m: 9.90...10.30

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 900

Speed rpm : 630

Del.quantity cm<sup>3</sup>/ : 145.0...149.0

1000 s: (143.0...151.0)

Aneroid pressure h: -

Speed rpm : 550

Del.quantity cm<sup>3</sup>/ : 113.5...121.5

1000 s: (111.5...123.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1095...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 190.0...210.0

1000 s: (185.0...215.0)

Rack travel in mm : 19.00...21.00

#### HIGH IDLE

#### 1st version

Speed rpm : 1100

Rack travel in mm : 6.10...6.30

Del.quantity cm<sup>3</sup>/ : 45.0...55.0

1000 s: (42.0...48.0)

#### LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00

Del.quantity cm<sup>3</sup>/ : 21.0...27.0

1000 s: (19.0...29.0)

Spread cm<sup>3</sup> : 4.50

1000 s: (7.50)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Starting/full-load transition speed from holding magnet = 450 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ALO 13.8 h  
 Edition : 11.8.92  
 Replaces : 3.87  
 Test oil : ISO-4113  
 Combination no. : 9 400 231 077  
 Injection pump  
 Pump designation : PES6P120A32ORS454  
 Governor  
 Governor design. : RSV600...1100P2/482R  
 Governor no. : 9 420 234 015

Customer-spec. information  
 Customer : ALLIS-CHALMERS

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 40...45  
 Overflow valve : 1 457 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 443 022

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.00X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 3.45...3.55  
 : (3.40...3.60)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

A27

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 11.20...11.40  
 Del.quantity cm<sup>3</sup>/ : 22.1...22.3  
 100 s: (22.1...22.3)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (-)  
 2nd speed rpm : 600  
 Rack travel in mm : 5.1...5.3  
 Del.quantity cm<sup>3</sup>/ : 2.9...3.7  
 100 s: (-)  
 Spread cm<sup>3</sup> : 0.7  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del.quantity : 221.0...223.0  
 1000 : (221.0...223.0)  
 Spread cm<sup>3</sup> : 8.00  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 43...51

Testing:  
 1st rack travel in: 10.30  
 Speed rpm : 1145...1155  
 2nd rack travel in: 4.00  
 Speed rpm : 1210...1240  
 4th rack travel in: 1300  
 Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
 position degrees: 25...33  
 Setting point w/out bumper spring

Speed rpm : 600  
Rack travel in mm : 4.7

Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 600  
Rack travel in mm : 5.10...5.30  
Rack travel in mm : 2.00  
Speed rpm : 655...7715

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000  
Del.quantity cm3/ : 217.0...223.0  
1000 s: (214.0...227.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...170.0  
1000 s: (-)  
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1215  
Del.quantity cm3/ : 43.0...53.0  
1000 s: (-)

LOW IDLE

Speed rpm : 600  
Del.quantity cm3/ : 29.0...37.0  
1000 s: (-)

Remarks:

:

Start-of-delivery mark is at start of  
delivery of cylinder 1



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 01.09.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 075 929  
Injection pump  
Pump designation : PES5M55C320RS177  
EP type number : 0 410 055 974  
Governor  
Governor design. : RSF340/2300M64-18  
Governor no. : 0 420 021 159

Cust. part no. : T8

Customer-spec. information  
Customer : MB-PKW

Engine : OM602A-USA ALDA

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 1 688 901 111

Opening  
pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)

Rack travel in mm : 20.00...22.00  
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 0.6...0.7

100 s: (0.5...0.9)

Spread cm3 : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del.quantity : 51.7...52.7

1000 : (50.7...53.7)

Spread cm3 : 2.50

1000 : (3.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,5...8,9

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,7...1,8

LOW IDLE 1

Control lever



Remarks:

:  
Start-of-delivery sensor system:  
adjustment and blocking with device  
KDEP 1077 =  $16.8^\circ \dots 17.2^\circ$   
( $16.7 \dots 17.3^\circ$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

Difference in start of delivery between  
max. and min. value = max.  $1^\circ$  angular  
displacement of cam

Pin projection =  $16.60 \dots 16.70$  mm

Testing and adjusting the control-rod-  
travel sensor with evaluation circuit  
KDEP-P400

Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of  $2.457 \dots 2.517$   
( $2.427 \dots 2.547$ ) V must be displayed  
on the digital voltmeter.

Adjustment of the control-rod travel  
sensor

At a speed of 1000 1/min, set fuel  
delivery at 21,5...22,5 (20,5...23,5)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 1.633 \dots 1.639$  ( $1.635 \dots 1.637$ ) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of  $2.457 \dots$   
 $2.517$  V must be attained.

CORRECTION OF INJECTED-FUEL QUANTITY

-Set max. change plus/minus 0.75 mm  
control-rod travel at correction  
screw on ALDA pressure box.

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE-SPEED AUXILIARY  
SPRING CUTOFF

-Control-lever position  $35,5^\circ$ , max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
-Control-lever position  $33.0^\circ$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover

point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With  $n = 315$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 01.09.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 075 930  
  
Injection pump  
Pump designation : PES5M55C320RS177  
EP type number : 0 410 055 974  
Governor  
Governor design. : RSF340/2300M74-1  
Governor no. : 0 420 021 156

Cust. part no. : T8

Customer-spec. information  
Customer : MB-PKW

Engine : OM602A-D/A (KAT)

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 1 688 901 111

Opening  
pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)

Rack travel in mm : 20.00...22.00  
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 345.0

Rack travel in mm : 5.5...5.7

Del.quantity cm3/ : 0.6...0.7

100 s: (0.5...0.9)

Spread cm3 : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del.quantity : 51.7...52.7

1000 : (50.7...53.7)

Spread cm3 : 2.50

1000 : (3.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.5...8.9

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1.7...1.8

LOW IDLE 1

Control lever



Remarks:

ADJUSTMENT OF ACTIVE BUCKING DAMPING (ARD)

Control lever on full-load stop. At  $n = 1000$  min  
 $I = 2.5$  A, difference in delivery referenced to  
delivery (5.6...7.6) ccm/1000 strokes.

Start-of-delivery sensor system:  
adjustment and blocking with device  
KDEP 1077 =  $16.8^\circ \dots 17.2^\circ$   
( $16.7 \dots 17.3^\circ$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

Difference in start of delivery between  
max. and min. value = max.  $1^\circ$  angular  
displacement of cam

CORRECTION OF INJECTED-FUEL QUANTITY

-Set max. change plus/minus 0.75 mm  
control-rod travel at correction  
screw on ALDA pressure box.

Pin projection = 16.60...16.70 mm

Testing and adjusting the control-rod-  
travel sensor with evaluation circuit  
KDEP-P400

Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of 2.457...2.517  
(2.427...2.547) V must be displayed  
on the digital voltmeter.

Adjustment of the control-rod travel  
sensor

At a speed of 1000 1/min, set fuel  
delivery at 21,5...22,5 (20,5...23,5)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 1.633 \dots 1.639$  (1.635...1.637) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of 2.457...  
2.517 V must be attained.

Sliding sleeve pre-travel = 4.7 mm

CHECKING THE IDLE-SPEED AUXILIARY

B06

SPRING CUTOFF

-Control-lever position  $44,5^\circ$  max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
-Control-lever position  $42,0^\circ$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With  $n = 315$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 01.09.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 075 935  
  
Injection pump  
Pump designation : PES5M55C320RS158-1  
EP type number : 0 410 055 979  
Governor  
Governor design. : RSF340/2300M65-4  
Governor no. : 0 420 021 144

Cust. part no. : T8

Customer-spec. information  
Customer : MB-FKW

Engine : OM602A-ECE ALDA

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 901 111

Opening  
pressure, bar : 144...150

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.20...2.30  
: (2.15...2.35)

Rack travel in mm : 20.00...22.00  
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.90...14.00

Del.quantity cm<sup>3</sup>/ : 5.2...5.3

100 s: (5.1...5.4)

Spread cm<sup>3</sup> : 0.2

100 s: (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 5.3...5.5

Del.quantity cm<sup>3</sup>/ : 0.6...0.7

100 s: (0.5...1.0)

Spread cm<sup>3</sup> : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del.quantity : 52.5...53.5

1000 : (51.5...54.5)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,1...8,5

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,7...1,8

## LOW IDLE 1

Control lever

position degrees: 8...12  
Setting point w/out bumper spring  
Speed rpm : 315  
Rack travel in mm : 5.4

#### Testing:

Speed rpm : 220  
Minimum rack travel: 8.00  
Speed rpm : 315  
Rack travel in mm : 5.30...5.50  
Rack travel in mm : 2.50  
Speed rpm : 540...640  
Speed rpm : 1000  
Maximum rack travel: 1.80

#### SET IDLE AUXILIARY SPRING

Speed rpm : 380  
Rack travel in mm : 4.20...4.40  
: (4.10...4.50)

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 13.90...14.00  
2nd speed rpm : 1600  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 2200  
Rack travel in m: 12.30...12.50

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 1000  
Pressure hPa : 1600  
Rack travel mm : 0.50...0.90

#### Measurement

Speed 1/min : 1000

1st pressure hPa : 1050  
Rack travel in m: 3.90...4.20  
2nd pressure hPa : 750  
Rack travel in m: 5.70...6.10

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1850  
Speed rpm : 1600  
Del.quantity cm<sup>3</sup>/ : 52.5...53.5  
1000 s: (51.5...54.5)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.0)  
Aneroid pressure h: 1850  
Speed rpm : 2200

Del.quantity cm<sup>3</sup>/ : 51.0...52.5  
1000 s: (50.0...53.5)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)  
Aneroid pressure h: 1050  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 34.0...35.0  
1000 s: (33.0...36.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 53.0...0.0  
1000 s: (53.0...0.0)  
Rack travel in mm : 20.10...0.00

#### HIGH IDLE

1st version  
Aneroid pressure h: 1850  
Speed rpm : 2500  
Rack travel in mm : 8.10...8.50  
Del.quantity cm<sup>3</sup>/ : 29.0...33.0  
1000 s: (28.0...34.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)

#### LOW IDLE

Speed rpm : 315  
Rack travel in mm : 5.30...5.50  
Del.quantity cm<sup>3</sup>/ : 6.5...7.5  
1000 s: (5.5...10.0)  
Spread cm<sup>3</sup> : 1.00  
1000 s: (1.50)

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop  
Speed rpm : 340  
Rack travel in mm : (12.6...14.0  
Del.quantity cm<sup>3</sup>/ : -  
1000 s: (42.0...50.0)  
Current A : 1.8

Control lever at full-load stop  
Speed rpm : 2950  
Rack travel in mm : 0.0...1.0  
Current

short-duration A : 3.0

#### Starting test

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : -  
min. 1000 s: 53.0 1.8A



Remarks:

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE-SPEED AUXILIARY  
SPRING CUTOFF

- Control-lever position  $35,5^\circ$ , max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.
- Control-lever position  $33.0^\circ$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

- Control lever at idle stop.  
With  $n = 315$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Start-of-delivery sensor system:  
adjustment and blocking with device  
KDEP 1077 =  $19.3^\circ \dots 19.7^\circ$   
( $19.2^\circ \dots 19.8^\circ$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.  
Difference in start of delivery between  
max. and min. value = max.  $1^\circ$  angular  
displacement of cam

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 01.09.92  
Replaces : 14.10.91  
Test oil : ISO-4113  
Combination no. : 0 400 076 968  
Injection pump  
Pump designation : PES6M55C32ORS178  
EP type number : 0 410 056 986  
Governor  
Governor design. : RSF315/2125M64-13  
Governor no. : 0 420 021 128

Customer-spec. information  
Customer : MB-PKW

Engine : OM603A D35 USA ALDA

1st version kW : 100.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)

Rack travel in mm : 20.00...22.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.70...13.80

Del.quantity cm<sup>3</sup>/ : 5.8...5.9

100 s: (5.7...6.0)

Spread cm<sup>3</sup> : 0.2

100 s: (0.3)

2nd speed rpm : 290.0

Rack travel in mm : 5.6...5.9

Del.quantity cm<sup>3</sup>/ : 0.5...0.6

100 s: (0.5...0.9)

Spread cm<sup>3</sup> : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del.quantity : 58.0...59.0

1000 : (57.0...60.0)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 50...0

3rd rack travel in: 6.5...6.9

Speed rpm : 2300

4th rack travel in: 2700

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

## LOW IDLE 1

Control lever

position degrees: 8...12

Setting point w/out bumper spring



adjustment and blocking with device  
KDEP 1077 = 16.8°...17.2°  
(16.7...17.3°) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

Difference in start of delivery between  
max. and min. value = max. 1° angular  
displacement of cam

**CORRECTION OF INJECTED-FUEL QUANTITY**  
-Set max. change plus/minus 0.75 mm  
control-rod travel at correction  
screw on ALDA pressure box.

#### Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel  
delivery at 22.0...23.0 (21.0...24.0)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 1.633...1.639$  ( $1.635...1.637$ ) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of 2.472...  
2.532 V must be attained.

#### Testing and adjusting the control-rod- travel sensor with evaluation circuit KDEP-P400

##### Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of 2.457...2.517  
(2.427...2.547) V must be displayed  
on the digital voltmeter.

Sliding sleeve pre-travel = 5.5 mm

#### **CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF**

-Control-lever position 44,5° max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
-Control-lever position 42,0°,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

#### **CHECKING THE PNEUMATIC SHUTOFF BOX**

-Control lever up against idle stop.  
At  $n = 290$  1/min and  $p_u = 450$  mbar  
control rod must move briskly to  
control-rod travel = 0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 094AA  
Injection pump  
Pump designation : PE12A95D/10LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV750AB996L  
Governor no. : 0 420 212 091

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 184.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del.quantity cm3/ : 0.4...0.9

100 s: (0.1...1.1)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 10.60

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 773...788

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm<sup>3</sup>/ : 4.0...9.0  
1000 s: (1.5...11.5)  
Spread cm<sup>3</sup> : 3.00  
1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 094AB  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV750AB996L  
Governor no. : 0 420 212 091

Customer spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 176.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

B15

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del.quantity cm3/ : 0.4...0.9

100 s: (0.1...1.1)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 25...29

Testing:

1st rack travel in: 10.60

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 773...788

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm3/ : 4.0...9.0  
1000 s: (1.5...11.5)  
Spread cm3 : 3.00  
1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 094AC  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV750AB996L  
Governor no. : 0 420 212 091

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 162.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

B17

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.30...10.40

Del. quantity cm<sup>3</sup>/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del. quantity cm<sup>3</sup>/ : 0.4...0.9

100 s: (0.1...1.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del. quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 9.30

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 770...785

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 9.30  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm3/ : 4.0...9.0  
1000 s: (1.5...11.5)  
Spread cm3 : 3.00  
1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 094AD  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV750A9996L  
Governor no. : 0 420 212 091

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 159.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

B19

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : i

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.20...10.30

Del. quantity cm<sup>3</sup>/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del. quantity cm<sup>3</sup>/ : 0.4...0.9

100 s: (0.1...1.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 88.0...91.0

1000 : (86.0...92.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 9.20

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 770...785

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm<sup>3</sup>/ : 4.0...9.0  
1000 s: (1.5...11.5)  
Spread cm<sup>3</sup> : 3.00  
1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 094AE  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV750AB996L  
Governor no. : 0 420 212 091

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 154.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.90...10.00

Del. quantity cm3/ : 8.2...8.4

100 s : (8.0...8.6)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del. quantity cm3/ : 0.4...0.9

100 s : (0.1...1.1)

Spread cm3 : 0.3

100 s : (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 8.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 770...785

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.70  
Del.quantity cm3/ : 4.0...9.0  
1000 s: (1.5...11.5)  
Spread cm3 : 3.00  
1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 094AF  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV750AB995L  
Governor no. : 0 420 212 091

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 148.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del.quantity cm3/ : 0.4...0.9

100 s: (0.1...1.1)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 8.60

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 770...785

## START CUT-OUT

Speed 1/min : 660 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 13.80...14.50

#### LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.60...5.70

Del.quantity cm3/ : 4.0...9.0

1000 s: (1.5...11.5)

Spread cm3 : 3.00

1000 s: (5.00)

Remarks:

:

#### APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 101AA  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1056D  
Governor no. : 0 420 214 245

Customer-spec. information  
Customer : KHD

Engine : BF12L413FW

1st version kW : 277.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 10.50...10.60  
Del. quantity cm<sup>3</sup>/ : 9.4...9.6  
100 s : (9.2...9.8)  
Spread cm<sup>3</sup> : 0.3  
100 s : (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 6.4...6.6  
Del. quantity cm<sup>3</sup>/ : 1.1...1.7  
100 s : (0.8...1.9)  
Spread cm<sup>3</sup> : 0.3  
100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1150  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Aneroid pressure h: 700  
Del. quantity : 94.0...96.0  
1000 : (92.0...98.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 62...70

Testing:  
1st rack travel in: 9.40  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00

Speed rpm : 1235...1265  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 10...18

#### Testing:

Speed rpm : 100  
Minimum rack travel: 3.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 310...380

#### TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 10.50...10.60  
2nd speed rpm : 775  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 930  
Rack travel in m: 10.70...10.90

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm: 10.50...10.60

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.30...10.40  
2nd pressure hPa : 329  
Rack travel in m: 10.60...10.70  
3rd pressure hPa : 280  
Rack travel in m: 10.40...10.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 775  
Del.quantity cm3/ : 98.5...101.5  
1000 s: (96.0...104.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 77.0...79.0  
1000 s: (75.0...81.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.40...14.60

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AA  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 247.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

:

#### LOW IDLE 1

Control lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.60...9.70

2nd speed rpm : 650

Rack travel in m: 10.20...10.30

3rd speed rpm : 850

Rack travel in m: 9.70...9.90

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 85.5...88.5

1000 s: (83.0...91.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 106AB  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 235.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

C01

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.3...8.5

100 s: (8.1...8.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 83.0...85.0

1000 : (81.0...87.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.30

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

:

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

CONSTANT REGULATION

Speed rpm : 320...400

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.90...10.00

3rd speed rpm : 850

Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 79.5...82.5

1000 s: (77.0...85.0)

RACK STOP ADJUSTMENT

Speed rpm : 400

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

C02

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AC  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 224.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

:

#### LOW IDLE 1

Control lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.00...9.10

2nd speed rpm : 650

Rack travel in m: 9.60...9.70

3rd speed rpm : 850

Rack travel in m: 9.10...9.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 75.5...78.5

1000 s: (73.0...81.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70



# ZOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AD  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 220.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135--  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.80...8.90

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 7.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

:

#### LOW IDLE 1

Control lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.80...8.90

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 850

Rack travel in m: 8.90...9.10

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 71.5...74.5

1000 s: (69.0...77.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.80

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 106AE  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 213.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

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Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.60...8.70

Del.quantity cm<sup>3</sup>/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 73.0...75.0

1000 : (71.0...77.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 7.60

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

:

#### LOW IDLE 1

Control Lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in mm : 8.60...8.70

2nd speed rpm : 650

Rack travel in mm : 9.20...9.30

3rd speed rpm : 850

Rack travel in mm : 8.70...8.90

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del. quantity cm<sup>3</sup>/ : 67.5...70.5

1000 s: (65.0...73.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.60

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AF  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 206.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.40...8.50

Del.quantity cm3/ : 7.0...7.2

100 s: (6.8...7.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 7.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

#### LOW IDLE 1

Control lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm: 6.40...6.60

Rack travel in mm: 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.40...8.50

2nd speed rpm : 650

Rack travel in m: 9.00...9.10

3rd speed rpm : 850

Rack travel in m: 8.50...8.70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del. quantity cm<sup>3</sup>/ : 65.5...68.5

1000 s: (63.0...71.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.40

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AG  
Injection pump  
Pump designation : PE12A95D61DLS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV300...1159AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 196.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.10...8.20

Del.quantity cm<sup>3</sup>/ : 6.7...6.9

100 s: (6.5...7.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1150

Del.quantity : 67.0...69.0

1000 : (65.0...71.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 62...70

### Testing:

1st rack travel in: 7.10

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1225...1255

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

#### LOW IDLE 1

Control lever

position degrees: 12...20

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

#### CONSTANT REGULATION

Speed rpm : 320...400

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.10...8.20

2nd speed rpm : 650

Rack travel in m: 8.70...8.80

3rd speed rpm : 850

Rack travel in m: 8.20...8.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm3/ : 61.5...64.5

1000 s: (59.0...67.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 400

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.10

Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 106AH  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1150AB1083L  
Governor no. : 0 420 212 114

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 190.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 7.90...8.00

Del.quantity cm<sup>3</sup>/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 6.90

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1400

Speed rpm : 0.00...1.00

Remarks:

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 640...700

CONSTANT REGULATION

Speed rpm : 320...400

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 7.90...8.00

2nd speed rpm : 650

Rack travel in m: 8.50...8.60

3rd speed rpm : 850

Rack travel in m: 8.00...8.20

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 57.5...60.5

1000 s: (55.0...63.0)

RACK STOP ADJUSTMENT

Speed rpm : 400

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.90

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 113AA  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 268.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.20...10.30

Del. quantity cm<sup>3</sup>/ : 9.2...9.4

100 s : (9.0...9.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200  
travel mm : 0.70...0.80

2nd speed rpm : 500  
travel mm : 2.60...2.80

3rd speed rpm : 900  
travel mm : 5.60...5.80

4th speed rpm : 1300  
travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

#### RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 9.20

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1350...1380

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 80...88

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.20...10.30

2nd speed rpm : 650

Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 90.5...93.5

1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

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Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 13.50...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 113AB  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 261.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.00...10.10

Del.quantity cm<sup>3</sup>/ : 8.9...9.1

100 s : (8.7...9.3)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200

travel mm : 0.70...0.80

2nd speed rpm : 500

travel mm : 2.60...2.80

3rd speed rpm : 900

travel mm : 5.60...5.80

4th speed rpm : 1300

travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 9.00  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 375...485

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 650  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 850  
Rack travel in m: 10.20...10.40

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 87.5...91.5  
1000 s: (85.0...94.0)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1290...1300

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 113AC  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 246.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

C19

11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.50...9.60

Del. quantity cm<sup>3</sup>/ : 8.4...8.6

100 s : (8.2...8.8)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200  
travel mm : 0.70...0.80

2nd speed rpm : 500  
travel mm : 2.60...2.80

3rd speed rpm : 900  
travel mm : 5.60...5.80

4th speed rpm : 1300  
travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.50  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1340...1370  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 375...485

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 650  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 80.5...83.5  
1000 s: (78.0...86.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 113AD  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 245.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
                  : (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
          180-195-240-255-300-  
          315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.50...9.60

Del.quantity cm<sup>3</sup>/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200  
travel mm : 0.70...0.80

2nd speed rpm : 500  
travel mm : 2.60...2.80

3rd speed rpm : 900  
travel mm : 5.60...5.80

4th speed rpm : 1300  
travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.50  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1340...1370  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

## CONSTANT REGULATION

Speed rpm : 375...485

## TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 650  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

## START CUT-CUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 80.5...83.5  
1000 s: (78.0...86.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.50  
Speed rpm : 1290...1300

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 113AE  
  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RGV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 240.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

C23

11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200  
travel mm : 0.70...0.80

2nd speed rpm : 500  
travel mm : 2.60...2.80

3rd speed rpm : 900  
travel mm : 5.60...5.80

4th speed rpm : 1300  
travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.20  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1340...1370  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

## CONSTANT REGULATION

Speed rpm : 375...485

## TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.20...9.30  
2nd speed rpm : 650  
Rack travel in m: 9.70...9.80  
3rd speed rpm : 850  
Rack travel in m: 9.40...9.60

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 74.5...77.5  
1000 s: (72.0...80.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.20  
Speed rpm : 1290...1300

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 640 113AF  
  
Injection pump  
Pump designation : PE12A950610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 235.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
                  : (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
          180-195-240-255-300-  
          315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.9...8.1

100 s: (7.7...8.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200

travel mm : 0.70...0.80

2nd speed rpm : 500

travel mm : 2.60...2.80

3rd speed rpm : 900

travel mm : 5.60...5.80

4th speed rpm : 1300

travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 116...124

### Testing:

1st rack travel in: 8.00  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1340...1370  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 80...88

### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

## CONSTANT REGULATION

Speed rpm : 375...485

## TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.50...9.60  
3rd speed rpm : 850  
Rack travel in m: 9.20...9.40

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 71.5...74.5  
1000 s: (69.0...77.0)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1290...1300

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 113AG  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kW : 210.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 8.30...8.40

Del.quantity cm<sup>3</sup>/ : 7.0...7.2

100 s : (6.8...7.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200  
travel mm : 0.70...0.80

2nd speed rpm : 500  
travel mm : 2.60...2.80

3rd speed rpm : 900  
travel mm : 5.60...5.80

4th speed rpm : 1300  
travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 7.30

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1330...1360

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 80...88

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 8.30...8.40

2nd speed rpm : 650

Rack travel in m: 8.80...8.90

3rd speed rpm : 850

Rack travel in m: 8.50...8.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 61.5...64.5

1000 s: (59.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.30

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 13.50...14.20

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 640 113AH  
Injection pump  
Pump designation : PE12A95D610LS2453  
EP type number : 0 410 690 998  
Governor  
Governor design. : RQV300...1250AB1223L  
Governor no. : 0 420 212 092

Customer-spec. information  
Customer : KHD

Engine : F12L413F

1st version kw : 254.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
(1.95...2.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-  
180-195-240-255-300-  
315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 200

travel mm : 0.70...0.80

2nd speed rpm : 500

travel mm : 2.60...2.80

3rd speed rpm : 900

travel mm : 5.60...5.80

4th speed rpm : 1300

travel mm : 8.60...8.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

### Testing:

1st rack travel in: 8.60  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1340...1370  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

### LOW IDLE 1

Control Lever  
position degrees: 80...88

### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

### CONSTANT REGULATION

Speed rpm : 375...485

### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 650  
Rack travel in m: 10.10...10.20  
3rd speed rpm : 850  
Rack travel in m: 9.80...10.00

### START CUT-OUT

Speed 1/min : 220 (240)

### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 84.5...87.5  
1000 s: (82.0...90.0)

### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1290...1300

### STARTING FUEL DELIVERY

Speed rpm : 100

002

Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 640 114AA

Injection pump  
 Pump designation : PE12A95D610LS2590  
 EP type number : 0 410 690 995  
 Governor  
 Governor design. : RQV300...1150AB1086-  
 1L  
 Governor no. : 0 420 212 221

Customer-spec. information  
 Customer : KHD

Engine : F12L413F

1st version kW : 224.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 4- 9- 8- 5- 2-  
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
 180-195-240-255-300-  
 315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

---

Rack travel in mm : 9.50...9.60

---

Del. quantity cm3/ : 7.8...8.0  
 100 s: (7.6...8.2)

---

Spread cm3 : 0.3  
 100 s: (0.6)

---

2nd speed rpm : 600.0  
 Rack travel in mm : 5.9...6.1  
 Del. quantity cm3/ : 1.2...1.8  
 100 s: (0.9...2.0)

---

Spread cm3 : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 600  
 travel mm : 1.40...1.50  
 2nd speed rpm : 615  
 travel mm : 1.70...1.90  
 3rd speed rpm : 665  
 travel mm : 2.80...3.00  
 4th speed rpm : 1180  
 travel mm : 8.50...8.60  
 5th speed rpm : 1225  
 travel mm : 9.30...9.40

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1165  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150

Del.quantity : 78.0...80.0  
1000 : (76.0...82.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 8.50  
Speed rpm : 1170...1180  
2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 300  
Minimum rack travel: 10.50  
Speed rpm : 600  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 600...670

TORQUE CONTROL  
Dimension a mm : 0.90  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 800  
Rack travel in m: 10.40...10.50  
3rd speed rpm : 990  
Rack travel in m: 10.00...10.20  
4th speed rpm : 1060  
Rack travel in m: 9.50...9.70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 800  
Del.quantity cm3/ : 85.5...88.5  
1000 s: (83.0...91.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

D04

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1170...1180

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

:  
Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

#### APPLICATION

Compressor

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 646 264AA  
  
Injection pump  
Pump designation : PE6A95D410LS2450  
EP type number : 0 410 696 989  
Governor  
Governor design. : RQ750AB1041L  
Governor no. : 0 420 200 062

Customer-spec. information  
Customer : KHD

Engine : F6L413F

1st version kW : 89.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

D05

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 710

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 710

Del.quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 10.50

Speed rpm : 750...755

2nd rack travel in: 4.50

Speed rpm : 780...788

4th rack travel in: 850

Speed rpm : 0.00...1.00

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.20

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 646 264AB  
Injection pump  
Pump designation : PE6A95D410LS2450  
EP type number : 0 410 696 989  
Governor  
Governor design. : RQ750AB1041L  
Governor no. : 0 420 200 062

Customer-spec. information  
Customer : KHD

Engine : F6L413F

1st version kW : 87.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

D07

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 710  
Rack travel in mm : 11.50...11.60  
Del.quantity cm3/ : 10.0...10.2  
100 s: (9.8...10.4)  
Spread cm3 : 0.3  
100 s: (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm3/ : 0.9...1.4  
100 s: (0.6...1.6)  
Spread cm3 : 0.3  
100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 710  
Del.quantity : 100.0...102.0  
1000 : (98.0...104.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Testing:  
1st rack travel in: 9.80  
Speed rpm : 750...755  
2nd rack travel in: 4.50  
Speed rpm : 780...788  
4th rack travel in: 850  
Speed rpm : 0.00...1.00

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.80  
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.80...14.20

Remarks:

:

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 648 111AA  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQ300/1250AB987DL  
Governor no. : 0 420 202 277

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 174.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.00

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1330...1360

4th rack travel in: 1450  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 345...385  
Speed rpm : 550  
Maximum rack travel: 1.00

#### TORQUE CONTROL

Dimension a mm : 0.25  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 650  
Rack travel in m: 10.90...11.00  
3rd speed rpm : 845  
Rack travel in m: 10.20...10.40  
4th speed rpm : 970  
Rack travel in m: 10.00...10.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 88.5...91.5  
1000 s: (86.0...94.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1295...1310

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

D10

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 9.0...15.0  
1000 s: (6.5...17.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 648 111AB  
  
Injection pump  
Pump designation : PE8A95D41OLS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQ300/1250AB987DL  
Governor no. : 0 420 202 277

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 154.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 8.90...9.00

Del.quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 7.90

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1325...1355

4th rack travel in: 1450  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 345...385

Speed rpm : 550

Maximum rack trave: 1.00

#### TORQUE CONTROL

Dimension a mm : 0.25

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 8.90...9.00

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 845

Rack travel in m: 9.00...9.20

4th speed rpm : 970

Rack travel in m: 8.80...9.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm3/ : 70.5...73.5

1000 s: (68.0...76.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.90

Speed rpm : 1295...1310

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 19.50...21.00

#### LOW IDLE

D12

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm3/ : 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 648 111AC  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RQ300/1250AB987DL  
 Governor no. : 0 420 202 277

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 103.0  
 Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

D13

Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16 40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.00

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1335...1365

4th rack travel in: 1450

Speed rpm : 0.00...1.00

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Testing:

Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 345...385  
Speed rpm : 550  
Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.25  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 10.00...10.10

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 19.50...21.00

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 31.07.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 648 122AA  
 Injection pump  
 Pump designation : PE8A95D410LS2451  
 EP type number : 0 410 698 992  
 Governor  
 Governor design. : RQ300/1150AB1074L  
 Governor no. : 0 420 200 066

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 164.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

D15

Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 8.60

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1325  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 350...390  
Speed rpm : 450  
Maximum rack trave: 1.00

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 1000  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 86.5...89.5  
1000 s: (84.0...92.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 648 122AB  
Injection pump  
Pump designation : PE8A95D410LS2451  
EP type number : 0 410 698 992  
Governor  
Governor design. : RQ300/1150AB1074L  
Governor no. : 0 420 200 066

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 159.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 8.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1325  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 350...390  
Speed rpm : 450  
Maximum rack trave: 1.00

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.40...9.50  
2nd speed rpm : 650  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 1000  
Rack travel in m: 9.50...9.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 82.5...85.5  
1000 s: (80.0...88.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.40  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 648 128AA  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQV300...1100AB1126L  
Governor no. : 0 420 212 140

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 151.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 7.9...8.1

100 s: (7.7...8.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.70...0.80

2nd speed rpm : 450  
travel mm : 1.90...2.20

3rd speed rpm : 950  
travel mm : 6.40...6.60

4th speed rpm : 1215  
travel mm : 8.90...9.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm3 : 3.50

1000 : (6.00)

#### RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing:

1st rack travel in: 8.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 78...86

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 415...535

#### TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.30...9.41

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 850

Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 78.5...81.5

1000 s: (76.0...84.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

D20

Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.50...14.90

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 648 128AB  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQV300...1100AB1126L  
Governor no. : 0 420 212 140

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 121.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 7.90...8.01

Del. quantity cm<sup>3</sup>/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.70...0.80

2nd speed rpm : 450

travel mm : 1.90...2.20

3rd speed rpm : 950

travel mm : 6.40...6.60

4th speed rpm : 1215

travel mm : 8.90...9.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 6.90  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 78...86

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 415...535

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 7.90...8.01  
2nd speed rpm : 650  
Rack travel in m: 8.60...8.70  
3rd speed rpm : 850  
Rack travel in m: 8.00...8.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 58.5...61.5  
1000 s: (56.0...64.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 6.90

Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.50...14.90

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 648 141AA  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQV300...1250AB1195L  
Governor no. : 0 420 212 172

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 169.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.30

2nd speed rpm : 500  
travel mm : 2.80...3.00

3rd speed rpm : 1000  
travel mm : 6.50...6.70

4th speed rpm : 1290  
travel mm : 8.60...8.80

5th speed rpm : 1375  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 8.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.50  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.30...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 375...485

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.80...9.90  
2nd speed rpm : 650  
Rack travel in m: 10.30...10.40  
3rd speed rpm : 850  
Rack travel in m: 10.00...10.20  
4th speed rpm : 950  
Rack travel in m: 9.80...10.10

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm3/ : 85.5...88.5  
1000 s: (83.0...91.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 648 142AA  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RQV350...1250AB990-1  
L  
Governor no. : 0 420 212 182

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 165.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1225  
Rack travel in mm : 9.50...9.61  
Del.quantity cm<sup>3</sup>/ : 8.5...8.7  
100 s: (8.3...8.9)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.6)

2nd speed rpm : 350.0  
Rack travel in mm : 6.4...6.6  
Del.quantity cm<sup>3</sup>/ : 1.2...1.8  
100 s: (0.9...2.0)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
travel mm : 1.20...1.30  
2nd speed rpm : 600  
travel mm : 3.80...4.00  
3rd speed rpm : 900  
travel mm : 5.20...5.50  
4th speed rpm : 1315  
travel mm : 9.30...9.70

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1225  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1225  
Del.quantity : 85.0...87.0  
1000 : (83.0...89.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

#### Testing:

1st rack travel in: 8.50  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1295...1325  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 65...73

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 350  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 370...480

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1225  
Rack travel in m: 9.50...9.61  
2nd speed rpm : 700  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 250  
Rack travel in m: 9.60...9.80

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 81.5...84.5  
1000 s: (79.0...87.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1260...1270

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 188AA  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB988DL  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 206.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm<sup>3</sup>/ : 8.7...8.9

100 s : (8.5...9.1)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread      cm<sup>3</sup> : 3.50  
             1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 8.60  
Speed      rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed      rpm : 1250...1280  
4th rack travel in: 1350  
Speed      rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 84...92

#### Testing:

Speed      rpm : 200  
Minimum rack travel: 10.70  
Speed      rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed      rpm : 750  
Maximum rack travel: 1.00

#### CONSTANT REGULATION

Speed      rpm : 320...390

#### TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed      rpm : 1150  
Rack travel in m: 9.60...9.70  
2nd speed      rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed      rpm : 1000  
Rack travel in m: 9.70...9.90

#### START CUT-OUT

Speed      1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed      rpm : 650  
Del.quantity cm<sup>3</sup>/ : 85.5...88.5  
             1000 s: (83.0...91.0)

#### RACK STOP ADJUSTMENT

Speed      rpm : 600

#### BREAKAWAY

D28

1st version  
1mm rack travel less than

full load rack tr: 8.60  
Speed      rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed      rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
             1000 s: (117.0...133.0)

#### LOW IDLE

Speed      rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 11.0...17.0  
             1000 s: (8.5...19.5)  
Spread      cm<sup>3</sup> : 3.50  
             1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 188AB  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB988DL  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 196.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.30  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

CONSTANT REGULATION  
Speed rpm : 320...390

TORQUE CONTROL  
Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1160  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 1000  
Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 79.5...82.5  
1000 s: (77.0...85.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

E02

1st version  
1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 188AC  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB988DL  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 188.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.00  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

CONSTANT REGULATION  
Speed rpm : 320...390

TORQUE CONTROL  
Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.70  
3rd speed rpm : 1000  
Rack travel in m: 9.10...9.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 75.5...78.5  
1000 s: (73.0...81.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

EO4

1st version  
1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 188AD  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB988DL  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 180.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

E05

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.70...8.80

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 7.70  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1240...1270  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 84...92

#### Testing:

Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

#### CONSTANT REGULATION

Speed rpm : 320...390

#### TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 8.70...8.80  
2nd speed rpm : 650  
Rack travel in m: 9.30...9.40  
3rd speed rpm : 1000  
Rack travel in m: 8.80...9.00

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 70.5...73.5  
1000 s: (68.0...76.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

E06

1st version  
1mm rack travel less than

full load rack tr: 7.70  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del. quantity cm<sup>3</sup>/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 188AE  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB9880L  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 171.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.30...8.41

Del.quantity cm3/ : 7.0...7.2

100 s: (5.8...7.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 7.30  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1240...1270  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 84...92

#### Testing:

Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

#### CONSTANT REGULATION

Speed rpm : 320...390

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 8.30...8.40  
2nd speed rpm : 650  
Rack travel in m: 8.90...9.00  
3rd speed rpm : 1000  
Rack travel in m: 8.40...8.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 63.5...66.5  
1000 s: (61.0...69.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

E08

1st version  
1mm rack travel less than

full load rack tr: 7.30  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 188AF  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB988DL  
Governor no. : 0 420 214 229

Customer-spec. information  
Customer : KHD

Engine : F10L413FW

1st version kW : 192.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

EO9

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 325  
travel mm : 1.50...2.00

3rd speed rpm : 760  
travel mm : 4.80...5.30

4th speed rpm : 1200  
travel mm : 8.60...9.10

5th speed rpm : 1420  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 8.00  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1245...1275  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.70  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack travel: 1.00

CONSTANT REGULATION  
Speed rpm : 320...390

TORQUE CONTROL  
Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.80...9.90  
3rd speed rpm : 1000  
Rack travel in m: 9.10...9.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 81.5...84.5  
1000 s: (79.0...87.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

E10

1st version  
1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:  
:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 189AA  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1075AB988DL  
Governor no. : 0 420 214 230

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 188.0  
Rated speed : 2150

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.30

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 8...16

Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 900  
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 81.5...84.5  
1000 s: (79.0...87.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 189AB  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1075AB988DL  
Governor no. : 0 420 214 230

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 178.0  
Rated speed : 2150

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.00

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1145...1175

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 8...16

Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.70  
3rd speed rpm : 900  
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 75.5...78.5  
1000 s: (73.0...81.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

min rack travel less than

full load rack tr: 8.00  
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 189AC  
 Injection pump  
 Pump designation : PE10A95D610/4LS2452  
 EP type number : 0 410 699 998  
 Governor  
 Governor design. : RGV300...1075AB988DL  
 Governor no. : 0 420 214 230

Customer spec. information  
 Customer : KHD

Engine : F10L413F

1st version kW : 175.0  
 Rated speed : 2150

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 8.80...8.90

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 7.80

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1145...1175

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 8...16

Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 8.80...8.90  
2nd speed rpm : 650  
Rack travel in m: 9.40...9.50  
3rd speed rpm : 900  
Rack travel in m: 8.90...9.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 70.5...73.5  
1000 s: (68.0...76.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 189AD  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1075AB988DL  
Governor no. : 0 420 214 230

Customer-spec. information  
Customer : KHD

Engine : F10L413FW

1st version kW : 168.0  
Rated speed : 2150

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.00

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 8...16

Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 440...500  
Speed rpm : 750  
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : 0.70  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.70...9.80  
3rd speed rpm : 900  
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 77.5...80.5  
1000 s: (75.0...83.0)  
Speed rpm : 400  
Del.quantity cm3/ : 78.5...82.5  
1000 s: (76.0...85.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100

E18

Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 195AA  
 Injection pump  
 Pump designation : PE10A95D610/4LS2452  
 EP type number : 0 410 699 998  
 Governor  
 Governor design. : RGV300...1000AB1006D  
 L  
 Governor no. : 0 420 214 232

Customer-spec. information  
 Customer : KHD

Engine : F10L413F

1st version kW : 175.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7  
 100 s: (0.8...1.9)

Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.30

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 8...16

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 700  
Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 850  
Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 80.5...83.5  
1000 s: (78.0...86.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

E20

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 195AB  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1000AB1006D  
L  
Governor no. : 0 420 214 232

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 167.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.00

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 8...16

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 700  
Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.70  
3rd speed rpm : 850  
Rack travel in m: 9.10...9.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 74.5...77.5  
1000 s: (72.0...80.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

E22

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 195AC  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1000AB1006D  
Governor no. : 0 420 214 232

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 163.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 8.80...8.90

Del. quantity cm<sup>3</sup>/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

## Testing:

1st rack travel in: 7.80

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever

position degrees: 8...16

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Speed rpm : 700

Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version:

1st speed rpm : 1000

Rack travel in m: 8.80...8.90

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 850

Rack travel in m: 8.90...9.10

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 71.5...74.5

1000 s: (69.0...77.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.80

Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

#### LOW IDLE

E24

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm<sup>3</sup>/ : 11.0...17.0

1000 s: (8.5...19.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 195AD  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RGV300...1000AB1006D  
L  
Governor no. : 0 420 214 232

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 148.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 8.20...8.30

Del.quantity cm<sup>3</sup>/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1075

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 7.20

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1060...1090

4th rack travel in: 1200

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever

position degrees: 8...16

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Speed rpm : 700

Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 8.20...8.30

2nd speed rpm : 650

Rack travel in m: 8.80...8.90

3rd speed rpm : 850

Rack travel in m: 8.30...8.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm3/ : 61.5...64.5

1000 s: (59.0...67.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.20

Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

#### LOW IDLE

E26

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm3/ : 11.0...17.0

1000 s: (8.5...19.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 200AA  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQ300/1250AB984DL  
Governor no. : 0 420 202 274

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 217.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 8.80

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1330...1360

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.80...9.90

2nd speed rpm : 650

Rack travel in m: 10.30...10.40

3rd speed rpm : 850

Rack travel in m: 10.00...10.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

Del.quantity cm3/ : 87.5...90.5

1000 s: (85.0...93.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...15.30

#### LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm3/ : 11.0...17.0

1000 s: (8.5...19.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 200AB  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQ300/1250AB984DL  
Governor no. : 0 420 202 274

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 147.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

F01

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.60

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1340...1370

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 11.60...11.70

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...15.30

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.80...7.00

Del.quantity cm3/ : 14.0...20.0

1000 s: (11.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 200AC  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQ300/1250AB984DL  
Governor no. : 0 420 202 274

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 140.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.50...10.60

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1330...1360

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 10.50...10.60

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...15.30

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.80...7.00

Del.quantity cm<sup>3</sup>/ : 14.0...20.0

1000 s: (11.5...22.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 200AD  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQ300/1250AB984DL  
Governor no. : 0 420 202 274

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 130.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

F05

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.00

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1330...1360

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 10.00...10.10

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...15.30

#### LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.80...7.00

Del.quantity cm3/ : 14.0...20.0

1000 s: (11.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 202AA  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300/650...900AB10  
20L  
Governor no. : 0 420 212 099

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 160.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.20...9.31

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7  
100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 910

Rack travel in mm : 15.00...18.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.20

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980

4th rack travel in: 1050

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever

position degrees: 8...16

#### Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Speed rpm : 750

Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 340...400

#### TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9.20...9.30

2nd speed rpm : 650

Rack travel in m: 9.20...9.30

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm3/ : 11.0...17.0

1000 s: (8.5...19.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 202AB  
 Injection pump  
 Pump designation : PE10A95D610/4LS2452  
 EP type number : 0 410 699 998  
 Governor  
 Governor design. : RQV300/650...900AB10  
 20L  
 Governor no. : 0 420 212 099

Customer-spec. information  
 Customer : KHD

Engine : F10L413F

1st version kW : 153.0  
 Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.1...7.3

100 s: (6.9...7.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 910

Rack travel in mm : 15.00...18.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 71.0...73.0

1000 : (69.0...75.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.00

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980

4th rack travel in: 1050

Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 8...16

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Speed rpm : 750  
Maximum rack trave: 1.00

#### CONSTANT REGULATION

Speed rpm : 340...400

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.00...9.10

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm3/ : 11.0...17.0  
1000 s: (8.5...19.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 210AA  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1150AB1055D  
L  
Governor no. : 0 420 214 244

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 196.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 9.30...9.40  
Del.quantity cm3/ : 8.2...8.4  
100 s: (8.0...8.6)  
Spread cm3 : 0.3  
100 s: (0.6)  
2nd speed rpm : 300.0  
Rack travel in mm : 6.4...6.6  
Del.quantity cm3/ : 1.1...1.7  
100 s: (0.8...1.9)  
Spread cm3 : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
travel mm : 1.50...1.80  
2nd speed rpm : 700  
travel mm : 3.65...3.95  
3rd speed rpm : 1100  
travel mm : 7.20...7.40  
4th speed rpm : 1250  
travel mm : 9.10...9.60

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1200  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del.quantity : 82.0...84.0  
1000 : (80.0...86.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 60...68

### Testing:

1st rack travel in: 8.30  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 7...15

### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

## CONSTANT REGULATION

Speed rpm : 320...425

## TORQUE CONTROL

Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 850  
Rack travel in m: 10.30...10.40  
3rd speed rpm : 1000  
Rack travel in m: 9.90...10.10

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Speed rpm : 850  
Del.quantity cm3/ : 92.5...95.5  
1000 s: (90.0...98.0)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

F12

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

## APPLICATION

Combine-harvester

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 219AA  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RQV300...1150AB1047D  
L  
Governor no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413 FW

1st version kW : 154.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 9.30...9.40  
Del. quantity cm<sup>3</sup>/ : 6.9...7.1  
100 s: (6.7...7.3)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 7.4...7.6  
Del. quantity cm<sup>3</sup>/ : 1.1...1.7  
100 s: (0.8...1.9)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.10...1.60  
2nd speed rpm : 390  
travel mm : 2.20...2.60  
3rd speed rpm : 1195  
travel mm : 8.70...9.10  
4th speed rpm : 1245  
travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1170  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del. quantity : 69.0...71.0  
1000 : (67.0...73.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 8.30  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 67...75

Testing:  
Speed rpm : 200  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.40...7.60

CONSTANT REGULATION  
Speed rpm : 300...420

TORQUE CONTROL  
Dimension a mm : 1.00  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 800  
Rack travel in m: 10.30...10.40  
3rd speed rpm : 935  
Rack travel in m: 9.80...10.00

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 74.5...77.5  
1000 s: (72.0...80.0)  
Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 64.5...69.5  
1000 s: (62.0...72.0)

## RACK STOP ADJUSTMENT

Speed rpm : 500

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

When accelerating from engine speed  
"0", no voltage in starting solenoid.

## APPLICATION

Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 219AB  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RQV300...1150AB1047D  
Governor no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413 FW

1st version kW : 148.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.10...9.20

Del. quantity cm<sup>3</sup>/ : 6.7...6.9

100 s: (6.5...7.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.10...1.60

2nd speed rpm : 390  
travel mm : 2.20...2.60

3rd speed rpm : 1195  
travel mm : 8.70...9.10

4th speed rpm : 1245  
travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 67.0...69.0

1000 : (65.0...71.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 117...125

### Testing:

1st rack travel in: 8.10  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1230...1260  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 67...75

### Testing:

Speed rpm : 200  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.40...7.60

## CONSTANT REGULATION

Speed rpm : 300...420

## TORQUE CONTROL

Dimension a mm : 1.00  
Torque control curve - 1st version:  
1st speed rpm : 1150  
Rack travel in m: 9.10...9.20  
2nd speed rpm : 800  
Rack travel in m: 10.10...10.20  
3rd speed rpm : 935  
Rack travel in m: 9.60...9.80

## START CUT-OUT

Speed 1/min : 220 (240)

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 72.5...75.5  
1000 s: (70.0...78.0)  
Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 64.5...69.5  
1000 s: (62.0...72.0)

## RACK STOP ADJUSTMENT

Speed rpm : 500

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

When accelerating from engine speed  
"0", no voltage in starting solenoid.

## APPLICATION

Below-ground operation



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 219AC  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RQV300...1150AB1047D  
L  
Governor no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413 FW

1st version kW : 138.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.80...8.90

Del.quantity cm3/ : 6.3...6.5

100 s: (6.1...6.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.10...1.60

2nd speed rpm : 390  
travel mm : 2.20...2.60

3rd speed rpm : 1195  
travel mm : 8.70...9.10

4th speed rpm : 1245  
travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever  
position degrees: 117...125

Testing:

1st rack travel in: 7.80  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1225...1255  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 67...75

Testing:

Speed rpm : 200  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 8.80...8.90  
2nd speed rpm : 800  
Rack travel in m: 9.60...9.70  
3rd speed rpm : 935  
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 68.5...71.5  
1000 s: (66.0...74.0)  
Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 64.5...69.5  
1000 s: (62.0...72.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

2. Set fuel delivery in fuel-delivery  
characteristics with stop above the  
governor housing.

When accelerating from engine speed  
"0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 219AD  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RQV300...1150AB1047D  
L  
Governor no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413 FW

1st version kW : 106.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.00...8.10

Del.quantity cm<sup>3</sup>/ : 5.3...5.5

100 s: (5.1...5.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del.quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.60

2nd speed rpm : 390

travel mm : 2.20...2.60

3rd speed rpm : 1195

travel mm : 8.70...9.10

4th speed rpm : 1245

travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 53.0...55.0

1000 : (51.0...57.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 7.00

Speed rpm : 1150...1200

2nd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 67...75

Testing:

Speed rpm : 200

Minimum rack travel: 9.00

Speed rpm : 300

Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.00...8.10

2nd speed rpm : 800

Rack travel in m: 9.00...9.10

3rd speed rpm : 935

Rack travel in m: 8.50...8.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del. quantity cm<sup>3</sup>/ : 58.5...61.5

1000 s: (56.0...64.0)

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 64.5...69.5

1000 s: (62.0...72.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.00

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

When accelerating from engine speed "0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 219AE  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RGV300...1150AB1047D  
L  
Governor no. : 0 420 214 242

Customer-spec. information  
Customer : KHD

Engine : F10L413 FW

1st version kW : 158.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 7.1...7.3

100 s: (6.9...7.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.10...1.60

2nd speed rpm : 390  
travel mm : 2.20...2.60

3rd speed rpm : 1195  
travel mm : 8.70...9.10

4th speed rpm : 1245  
travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1100

Del.quantity : 71.0...73.0

1000 : (69.0...75.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 8.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed rpm : 200

Minimum rack travel: 9.00

Speed rpm : 300

Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.50...9.60

2nd speed rpm : 800

Rack travel in m: 10.30...10.40

3rd speed rpm : 935

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del. quantity cm<sup>3</sup>/ : 73.5...76.5

1000 s: (71.0...79.0)

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 64.5...69.5

1000 s: (62.0...72.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

When accelerating from engine speed "0", no voltage in starting solenoid.

APPLICATION

Below-ground operation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 649 219AF  
 Injection pump  
 Pump designation : PE10A95D610/4LS2589  
 EP type number : 0 410 699 994  
 Governor  
 Governor design. : RQV300...1150AB1047D  
 L  
 Governor no. : 0 420 214 242  
 Customer-spec. information  
 Customer : KHD  
 Engine : F10L413 FW  
 1st version kW : 127.0  
 Rated speed : -

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 419 992 198  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 1.50...1.60  
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 8.40...8.50  
 Del. quantity cm<sup>3</sup>/ : 5.7...5.9  
 100 s: (5.5...6.1)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 7.4...7.6  
 Del. quantity cm<sup>3</sup>/ : 1.1...1.7  
 100 s: (0.8...1.9)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.10...1.60  
 2nd speed rpm : 390  
 travel mm : 2.20...2.60  
 3rd speed rpm : 1195  
 travel mm : 8.70...9.10  
 4th speed rpm : 1245  
 travel mm : 9.40...9.80

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1170  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del. quantity : 57.0...59.0  
 1000 : (55.0...61.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 7.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed rpm : 200

Minimum rack travel: 8.40

Speed rpm : 300

Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.40...8.50

2nd speed rpm : 800

Rack travel in m: 9.40...9.50

3rd speed rpm : 935

Rack travel in m: 8.70...8.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/ : 62.5...65.5

1000 s: (60.0...68.0)

Speed rpm : 100

Del.quantity cm3/ : 64.5...69.5

1000 s: (62.0...72.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.40

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

When accelerating from engine speed "0", no voltage in starting solenoid.

APPLICATION

Below-ground operation



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 223AA  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 235.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 500

travel mm : 2.80...3.00

3rd speed rpm : 1000

travel mm : 6.50...6.70

4th speed rpm : 1290

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread        cm<sup>3</sup> : 3.50  
              1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
  position degrees: 113...121

#### Testing:

1st rack travel in: 9.40  
  Speed        rpm : 1290...1300  
2nd rack travel in: 4.00  
  Speed        rpm : 1360...1390  
4th rack travel in: 1500  
  Speed        rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
  position degrees: 80...88

#### Testing:

Speed        rpm : 100  
Minimum rack trave: 8.00  
Speed        rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed        rpm : 375...485

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed    rpm : 1250  
  Rack travel in m: 10.40...10.50  
2nd speed    rpm : 650  
  Rack travel in m: 10.90...11.00  
3rd speed    rpm : 1000  
  Rack travel in m: 10.50...10.70

#### START CUT-OUT

Speed        1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed        rpm : 650  
Del.quantity cm<sup>3</sup>/ : 95.0...98.0  
              1000 s: (92.5...100.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

  full load rack tr: 9.40  
Speed        rpm : 1290...1300

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#### STARTING FUEL DELIVERY

Speed        rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
              1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 223AB  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...125DAB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 224.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 9.2...9.4

100 s: (9.0...9.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.30

2nd speed rpm : 500  
travel mm : 2.80...3.00

3rd speed rpm : 1000  
travel mm : 6.50...6.70

4th speed rpm : 1290  
travel mm : 8.60...8.80

5th speed rpm : 1375  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 9.00  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 375...485

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 650  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 1000  
Rack travel in m: 10.10...10.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 90.5...93.5  
1000 s: (88.0...96.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.00  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 223AC  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 217.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.30

2nd speed rpm : 500  
travel mm : 2.80...3.00

3rd speed rpm : 1000  
travel mm : 6.50...6.70

4th speed rpm : 1290  
travel mm : 8.60...8.80

5th speed rpm : 1375  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 8.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 375...485

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in mm: 9.80...9.90  
2nd speed rpm : 650  
Rack travel in mm: 10.30...10.40  
3rd speed rpm : 1000  
Rack travel in mm: 9.90...10.10

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 87.5...90.5  
1000 s: (85.0...93.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.80  
Speed rpm : 1290...1300

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#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 223AD  
Injection pump  
Pump designation : PE10495D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 211.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 500

travel mm : 2.80...3.00

3rd speed rpm : 1000

travel mm : 6.50...6.70

4th speed rpm : 1290

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

#### Testing:

1st rack travel in: 8.50  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 80...88

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 375...485

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 650  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 1000  
Rack travel in m: 9.60...9.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 83.5...86.5  
1000 s: (81.0...89.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1290...1300

G04

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 223AE  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 206.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.4...8.6

100 s : (8.2...8.8)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm3 : 0.3

100 s : (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 500

travel mm : 2.80...3.00

3rd speed rpm : 1000

travel mm : 6.50...6.70

4th speed rpm : 1290

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

#### Testing:

1st rack travel in: 8.30  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 80...88

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 375...485

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.80...9.90  
3rd speed rpm : 1000  
Rack travel in m: 9.40...9.60

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 79.5...82.5  
1000 s: (77.0...85.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1290...1300

G06

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 223AF  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1129L  
Governor no. : 0 420 212 143

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 200.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)  
Rack travel in mm : 9.00...12.00

G07

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.10...9.20

Del. quantity cm<sup>3</sup>/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 500

travel mm : 2.80...3.00

3rd speed rpm : 1000

travel mm : 6.50...6.70

4th speed rpm : 1290

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

#### Testing:

1st rack travel in: 8.10  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 80...88

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 375...485

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.10...9.20  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.70  
3rd speed rpm : 1000  
Rack travel in m: 9.20...9.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 76.5...79.5  
1000 s: (74.0...82.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.10  
Speed rpm : 1290...1300

G08

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.70...15.30

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 649 241AA  
Injection pump  
Pump designation : PE10A95D610/4LS2589  
EP type number : 0 410 699 994  
Governor  
Governor design. : RQV300...1150AB1086L  
Governor no. : 0 420 212 113

Customer-spec. information  
Customer : KHD

Engine : F10L413

1st version kW : 188.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.30...8.40

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.30...0.50

2nd speed rpm : 600

travel mm : 2.80...3.10

3rd speed rpm : 1000

travel mm : 6.40...6.70

4th speed rpm : 1200

travel mm : 8.80...9.20

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 7.30

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1200...1230

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 420...540

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 8.30...8.40

2nd speed rpm : 800

Rack travel in m: 9.20...9.30

3rd speed rpm : 1000

Rack travel in m: 8.90...9.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del. quantity cm<sup>3</sup>/ : 83.5...86.5

1000 s: (81.0...89.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.30

G10

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 120.0...130.0

1000 s: (117.0...133.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Compressor

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 649 245AA  
  
Injection pump  
Pump designation : PE10A95D610/4LS2452  
EP type number : 0 410 699 998  
Governor  
Governor design. : RQV300...1250AB1055-  
2L  
Governor no. : 0 420 212 216

Customer-spec. information  
Customer : KHD

Engine : F10L413F

1st version kW : 200.0  
Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 10- 9- 4- 3- 6-  
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.10...9.20

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.40...1.50

2nd speed rpm : 410

travel mm : 2.50...2.70

3rd speed rpm : 460

travel mm : 3.00...3.20

4th speed rpm : 1305

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.60...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1255

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 8.10  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1475  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 82...90

#### Testing:

Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

#### CONSTANT REGULATION

Speed rpm : 408...458

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.10...9.20  
2nd speed rpm : 750  
Rack travel in m: 10.10...10.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 87.5...90.5  
1000 s: (85.0...93.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.10  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

G12

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.50...14.20

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.07.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 038AA  
Injection pump  
Pump designation : PE8A95D410LS2451  
EP type number : 0 410 698 992  
Governor  
Governor design. : RSV300...1000A7C1002  
L  
Governor no. : 0 420 232 309

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 129.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.1...1.8

100 s: (0.8...2.0)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

2nd rack travel in: 4.00  
Speed rpm : 950...980  
4th rack travel in: 1150  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control Lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 420...510

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 700  
Rack travel in m: 9.70...9.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 75.5...78.5  
1000 s: (73.0...81.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.20...14.60

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.07.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 038AB  
Injection pump  
Pump designation : PE8A95D410LS2451  
EP type number : 0 410 698 992  
Governor  
Governor design. : RSV300...1000A7C1002  
L  
Governor no. : 0 420 232 309

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 123.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.00...9.10

Del.quantity cm<sup>3</sup>/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 1.1...1.8

100 s: (0.8...2.0)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 69.0...71.0

1000 : (67.0...73.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 940...950

2nd rack travel in: 4.00  
Speed rpm : 950...980  
4th rack travel in: 1150  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 420...510

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 700  
Rack travel in m: 9.40...9.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm3/ : 70.5...73.5  
1000 s: (68.0...76.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.20...14.60

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 678 040AA  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 188.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1330...1360  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 650  
Rack travel in m: 10.90...11.00  
3rd speed rpm : 850  
Rack travel in m: 10.60...10.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 95.0...98.0  
1000 s: (92.5...100.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 678 040AB  
  
Injection pump  
Pump designation : FE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 174.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.00...10.10

Del.quantity cm<sup>3</sup>/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.00

Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 650  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 850  
Rack travel in m: 10.20...10.40

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 89.5...92.5  
1000 s: (87.0...95.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

G20



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AC  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kw : 169.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.70

Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 9.70...9.80  
2nd speed rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 850  
Rack travel in m: 9.90...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 81.5...84.5  
1000 s: (79.0...87.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.70  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AD  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 165.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
Rack travel in mm : 9.50...9.60  
Del. quantity cm<sup>3</sup>/ : 8.5...8.7  
100 s: (8.3...8.9)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del. quantity cm<sup>3</sup>/ : 0.9...1.5  
100 s: (0.6...1.7)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Del. quantity : 85.0...87.0  
1000 : (83.0...89.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 8.50  
Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 650  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 80.5...83.5  
1000 s: (78.0...86.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

G24

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AE  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310  
 Customer-spec. information  
 Customer : KHD  
 Engine : F8L413F  
 1st version kW : 162.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 419 992 198  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.30...9.40

Del.quantity cm<sup>3</sup>/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.80...9.90  
3rd speed rpm : 850  
Rack travel in m: 9.50...9.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 76.5...79.5  
1000 s: (74.0...82.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AF  
 Injection pump  
 Pump designation : FE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310  
 Customer-spec. information  
 Customer : KHD  
 Engine : F8L413F  
 1st version kW : 156.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 419 992 198  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
 Rack travel in mm : 9.00...9.10  
 Del.quantity cm3/ : 7.9...8.1  
 100 s : (7.7...8.3)  
 Spread cm3 : 0.3  
 100 s : (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm3/ : 0.9...1.5  
 100 s : (0.6...1.7)  
 Spread cm3 : 0.3  
 100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1250  
 Del.quantity : 79.0...81.0  
 1000 : (77.0...83.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 8.00  
 Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.50...9.61  
3rd speed rpm : 850  
Rack travel in m: 9.20...9.40

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 71.5...74.5  
1000 s: (69.0...77.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack travel: 8.00  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AG  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 154.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
 Rack travel in mm : 8.90...9.00  
 Del.quantity cm3/ : 7.8...8.0  
 100 s: (7.6...8.2)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm3/ : 0.9...1.5  
 100 s: (0.6...1.7)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1250  
 Del.quantity : 78.0...80.0  
 1000 : (76.0...82.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 7.90  
 Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 8.90...9.00  
2nd speed rpm : 650  
Rack travel in m: 9.40...9.51  
3rd speed rpm : 850  
Rack travel in m: 9.10...9.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 71.5...74.5  
1000 s: (69.0...77.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.90  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H02

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AH  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 152.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
Rack travel in mm : 8.80...8.90  
Del.quantity cm3/ : 7.7...7.9  
100 s: (7.5...8.1)  
Spread cm3 : 0.3  
100 s: (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm3/ : 0.9...1.5  
100 s: (0.6...1.7)  
Spread cm3 : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Del.quantity : 77.0...79.0  
1000 : (75.0...81.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 7.80  
Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 8.80...8.90  
2nd speed rpm : 650  
Rack travel in m: 9.30...9.41  
3rd speed rpm : 850  
Rack travel in m: 9.00...9.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 70.5...73.5  
1000 s: (68.0...76.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H04

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040A1  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 130.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder-  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 7.70...7.80

Del.quantity cm3/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 6.70

Speed rpm : 1290...1300

2nd rack travel in: 4.00  
Speed rpm : 1325...1355  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 7.70...7.80  
2nd speed rpm : 650  
Rack travel in m: 8.30...8.40  
3rd speed rpm : 850  
Rack travel in m: 7.80...8.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 54.5...57.5  
1000 s: (52.0...60.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 6.70  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

HD6

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AK  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310  
 Customer-spec. information  
 Customer : KHD  
 Engine : F8L413F  
 1st version kW : 165.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 419 992 198  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_  
 BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

H07

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 9.60...9.70  
 Del.quantity cm3/ : 8.7...8.9  
 100 s: (8.5...9.1)  
 Spread cm3 : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm3/ : 0.9...1.5  
 100 s: (0.6...1.7)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del.quantity : 87.0...89.0  
 1000 : (85.0...91.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 8.60  
 Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 85.5...88.5  
1000 s: (83.0...91.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H08



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AL  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 157.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 9.30...9.40  
 Del.quantity cm3/ : 8.3...8.5  
 100 s: (8.1...8.7)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm3/ : 0.9...1.5  
 100 s: (0.6...1.7)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del.quantity : 83.0...85.0  
 1000 : (81.0...87.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 8.30  
 Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 850  
Rack travel in m: 9.40...9.60

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 79.5...82.5  
1000 s: (77.0...85.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H10

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AM  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 150.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 9.00...9.10  
Del. quantity cm<sup>3</sup>/ : 7.8...8.0  
100 s : (7.6...8.2)  
Spread cm<sup>3</sup> : 0.3  
100 s : (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del. quantity cm<sup>3</sup>/ : 0.9...1.5  
100 s : (0.6...1.7)  
Spread cm<sup>3</sup> : 0.3  
100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del. quantity : 78.0...80.0  
1000 : (76.0...82.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 8.00  
Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.71  
3rd speed rpm : 850  
Rack travel in m: 9.10...9.30

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 75.5...78.5  
1000 s: (73.0...81.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AN  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 147.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.80...8.90

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150  
Rack travel in m: 8.80...8.90  
2nd speed rpm : 650  
Rack travel in m: 9.40...9.51  
3rd speed rpm : 850  
Rack travel in m: 8.90...9.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 71.5...74.5  
1000 s: (69.0...77.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H14

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 678 040A0  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 140.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  

---

Rack travel in mm : 8.50...8.60  

---

Del.quantity cm3/ : 7.2...7.4  
100 s : (7.0...7.6)  

---

Spread cm3 : 0.3  
100 s : (0.6)  

---

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm3/ : 0.9...1.5  
100 s : (0.6...1.7)  
Spread cm3 : 0.3  
100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del.quantity : 72.0...74.0  
1000 : (70.0...76.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 7.50  
Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 8.50...8.60  
2nd speed rpm : 650  
Rack travel in m: 9.10...9.21  
3rd speed rpm : 850  
Rack travel in m: 8.60...8.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 67.5...70.5  
1000 s: (65.0...73.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.50  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 678 040AP  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 104.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 6.80...6.90

Del.quantity cm3/ : 5.1...5.3

100 s: (4.9...5.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 51.0...53.0

1000 : (49.0...55.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 5.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150  
Rack travel in m: 6.80...6.90  
2nd speed rpm : 650  
Rack travel in m: 7.60...7.71  
3rd speed rpm : 850  
Rack travel in m: 6.90...7.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 48.5...51.5  
1000 s: (46.0...54.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 5.80  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AQ  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 152.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 850  
Rack travel in m: 9.40...9.60

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 80.5...83.5  
1000 s: (78.0...86.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H2O

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 678 040AR  
  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 157.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.60

Speed rpm : 1115...1125

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 86.5...89.5  
1000 s: (84.0...92.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AS  
 Injection pump  
 Pump designation : PE8A95D41OLS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 149.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
 Rack travel in mm : 9.20...9.30  
 Del.quantity cm3/ : 8.1...8.3  
 100 s: (7.9...8.5)  
 Spread cm3 : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm3/ : 0.9...1.5  
 100 s: (0.6...1.7)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1075  
 Del.quantity : 81.0...83.0  
 1000 : (79.0...85.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 8.20  
 Speed rpm : 1115...1125

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1075  
Rack travel in m: 9.20...9.30  
2nd speed rpm : 650  
Rack travel in m: 9.80...9.91  
3rd speed rpm : 850  
Rack travel in m: 9.30...9.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 79.5...82.5  
1000 s: (77.0...85.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.20  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H24



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AT  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 142.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00x2.00x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 8.90...9.00  
Del.quantity cm3/ : 7.5...7.8  
100 s: (7.3...8.0)  
Spread cm3 : 0.3  
100 s: (0.6)

2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm3/ : 0.9...1.5  
100 s: (0.6...1.7)  
Spread cm3 : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Del.quantity : 75.5...78.5  
1000 : (73.5...80.5)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 7.90  
Speed rpm : 1115...1125

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1075  
Rack travel in m: 8.90...9.00  
2nd speed rpm : 650  
Rack travel in m: 9.50...9.61  
3rd speed rpm : 850  
Rack travel in m: 9.00...9.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.90  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AU  
Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 137.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00x2.00x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 8.70...8.80

Del.quantity cm3/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.70

Speed rpm : 1115...1125

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 8.70...8.80  
2nd speed rpm : 650  
Rack travel in m: 9.30...9.41  
3rd speed rpm : 850  
Rack travel in m: 8.80...9.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 70.5...73.5  
1000 s: (68.0...76.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.70  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

H28

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AV  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 127.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 8.30...8.40

Del.quantity cm<sup>3</sup>/ : 6.6...6.8

100 s: (6.4...7.0)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 66.0...68.0

1000 : (64.0...70.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.30

Speed rpm : 1115...1125

2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 8.30...8.40  
2nd speed rpm : 650  
Rack travel in m: 8.90...9.01  
3rd speed rpm : 850  
Rack travel in m: 8.40...8.60

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 63.5...66.5  
1000 s: (61.0...69.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.30  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

J02

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 678 040AW  
 Injection pump  
 Pump designation : PE8A95D410LS2608  
 EP type number : 0 410 698 988  
 Governor  
 Governor design. : RSV300...1325A8C1002  
 L  
 Governor no. : 0 420 232 310

Customer-spec. information  
 Customer : KHD

Engine : F8L413F

1st version kW : 147.0  
 Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 7- 2- 6- 5-  
 4- 3

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.60...9.70

Del.quantity cm<sup>3</sup>/ : 8.3...8.5

100 s: (8.1...8.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 83.0...85.0

1000 : (81.0...87.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.60

Speed rpm : 1040...1050

2nd rack travel in: 4.00  
Speed rpm : 1060...1090  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack trave: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 9.60...9.70  
2nd speed rpm : 650  
Rack travel in m: 10.20...10.30  
3rd speed rpm : 850  
Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 83.5...86.5  
1000 s: (81.0...89.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AX  
Injection pump  
Pump designation : PE8A95D41OLS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
L  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 140.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.30...9.40

Del. quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 1040...1050

2nd rack travel in: 4.00  
Speed rpm : 1060...1090  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 650  
Rack travel in m: 9.90...10.00  
3rd speed rpm : 850  
Rack travel in m: 9.60...9.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 80.5...83.5  
1000 s: (78.0...86.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

J06

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 678 040AY  
Injection pump  
Pump designation : PF8A95D410LS2608  
EP type number : 0 410 698 988  
Governor  
Governor design. : RSV300...1325A8C1002  
Governor no. : 0 420 232 310

Customer-spec. information  
Customer : KHD

Engine : F8L413F

1st version kW : 134.0  
Rated speed : 2650

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 7- 2- 6- 5-  
4- 3

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00...9.10

Del. quantity cm<sup>3</sup>/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 1040...1050

2nd rack travel in: 4.00  
Speed rpm : 1060...1090  
4th rack travel in: 1575  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 310...370  
Speed rpm : 700  
Maximum rack travel: 1.00

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.60...9.71  
3rd speed rpm : 850  
Rack travel in m: 9.30...9.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 74.5...77.5  
1000 s: (72.0...80.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 116.5...127.5  
1000 s: (113.5...130.5)  
Rack travel in mm : 14.00...14.40

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 845 050AA  
Injection pump  
Pump designation : PES5A95D410RS2417  
EP type number : 0 410 895 993  
Governor  
Governor design. : RQ750AB1240L  
Governor no. : 0 420 200 110

Customer-spec. information  
Customer : KHD

Engine : F5L413FR

1st version kW : 70.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00x2.00x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.10...10.20

Del. quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del. quantity cm3/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 9.10

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 775...785

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.00...14.40

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 845 050AB

Injection pump  
 Pump designation : PES5A95D4-10RS2417  
 EP type number : 0 410 895 993  
 Governor  
 Governor design. : RQ750AB1240L  
 Governor no. : 0 420 200 110

Customer-spec. information  
 Customer : KHD

Engine : F5L413FR

1st version kW : 68.0  
 Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del.quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 8.80

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 775...785

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.00...14.40

Remarks:

:

APPLICATION:

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 845 050AC  
Injection pump  
Pump designation : PES5A95D410RS2417  
EP type number : 0 410 895 993  
Governor  
Governor design. : RQ750AB1240L  
Governor no. : 0 420 200 110

Customer-spec. information  
Customer : KHD

Engine : F5L413FR

1st version kW : 64.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 8.40

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 775...785

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 14.00...14.40

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 845 051AA

Injection pump  
Pump designation : PES5A95D410RS2417  
EP type number : 0 410 895 993  
Governor  
Governor design. : RQ900AB1054L  
Governor no. : 0 420 200 064

Customer-spec. information  
Customer : KHD

Engine : F5L413FR

1st version kW : 78.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 850

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 8.40

Speed rpm : 900...905

2nd rack travel in: 3.50

Speed rpm : 930...940

## START CUT-OUT

Speed 1/min : 810 (830)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.20...13.80

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 846 432AA  
Injection pump  
Pump designation : PES6A95D410RS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ750AB1240L  
Governor no. : 0 420 200 110

Customer-spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 92.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X-600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 9.40

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 775...785

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 12.90...13.20

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 846 432AB  
 Injection pump  
 Pump designation : PES6A95D410RS2416  
 EP type number : 0 410 896 961  
 Governor  
 Governor design. : RQ750AB1240L  
 Governor no. : 0 420 200 110

Customer spec. information  
 Customer : KHD

Engine : F6L413FR

1st version kW : 89.0  
 Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X-600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
 : (1.85...2.05)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 9.40

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 775...785

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 12.90...13.20

Remarks:

:

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 846 432AC  
  
Injection pump  
Pump designation : PES6A95D410RS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ750AB124OL  
Governor no. : 0 420 200 110

Customer-spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 82.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X-600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm3 : 3.50

1000 : (6.00)

## START CUT-OUT

Speed 1/min : 640 (660)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 750...755

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 12.90...13.20

Remarks:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 846 433AA  
  
Injection pump  
Pump designation : PES6A95D41ORS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ9D0AB1054L  
Governor no. : 0 420 200 064

Customer-spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 107.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 9.20

Speed rpm : 900...905

2nd rack travel in: 3.50

Speed rpm : 930...940

## START CUT-OUT

Speed 1/min : 810 (830)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.20...13.80

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 846 433AB  
  
Injection pump  
Pump designation : PES6A95D410RS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ900AB1054L  
Governor no. : 0 420 200 064

Customer spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 103.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00x2.00x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850  
  
Rack travel in mm : 10.20...10.30  
  
Del.quantity cm3/ : 10.0...10.2  
100 s: (9.8...10.4)  
  
Spread cm3 : 0.3  
100 s: (0.6)

2nd speed rpm : 250.0  
Rack travel in mm : 5.6...5.8  
Del.quantity cm3/ : 0.9...1.5  
100 s: (0.6...1.7)  
Spread cm3 : 0.3  
100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 850  
Del.quantity : 100.0...102.0  
1000 : (98.0...104.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
  
Testing:  
1st rack travel in: 9.20  
Speed rpm : 900...905  
2nd rack travel in: 3.50  
Speed rpm : 930...940

## START CUT-OUT

Speed 1/min : 810 (830)

## BREAKAWAY

1st version  
1mm rack travel less than  
  
full load rack tr: 9.20  
Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.20...13.80

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 846 433AC  
  
Injection pump  
Pump designation : PES6A95D410RS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ900AB1054L  
Governor no. : 0 420 200 064

Customer-spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 95.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness : 6.00X2.00X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm3 : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 8.40

Speed rpm : 900...905

2nd rack travel in: 3.50

Speed rpm : 930...940

## START CUT-OUT

Speed 1/min : 810 (830)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.20...13.80

Remarks:

:

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 846 433AD  
Injection pump  
Pump designation : PES6A95D410RS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RQ900AB1054L  
Governor no. : 0 420 200 064

Customer-spec. information  
Customer : KHD

Engine : F6L413FR

1st version kW : 92.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

K01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 9.10...9.20

Del.quantity cm<sup>3</sup>/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 8.10

Speed rpm : 900...905

2nd rack travel in: 3.50

Speed rpm : 930...940

## START CUT-OUT

Speed 1/min : 810 (830)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 13.20...13.80

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 846 562A  
Injection pump  
Pump designation : PES6A100D410RS2687  
EP type number : 0 410 806 001  
Governor  
Governor design. : RQV400...1000AB1231L  
Governor no. : 0 420 212 206

Customer-spec. information  
Customer : LIEBHERR

Engine : D906TI

1st version kW : 169.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80  
: (2.65...2.85)  
Rack travel in mm : 9.00...12.00

K03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
& maximum rack tra: 21.00  
Difference ° CS : 4.00...5.00

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.70...13.80

Del.quantity cm<sup>3</sup>/ : 13.9...14.1

100 s: (13.7...14.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.8...7.0

Del.quantity cm<sup>3</sup>/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 440  
travel mm : 2.10...2.30

2nd speed rpm : 500  
travel mm : 3.00...3.50

3rd speed rpm : 585  
travel mm : 3.50...4.00

4th speed rpm : 1045  
travel mm : 8.10...8.20

5th speed rpm : 1135  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1065

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700  
Del.quantity : 139.0...141.0  
1000 : (137.0...143.0)  
Spread cm3 : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 12.70  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 66...74

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.30  
Speed rpm : 400  
Rack travel in mm : 6.80...7.00

#### CONSTANT REGULATION

Speed rpm : 425...500

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 13.70...13.80  
2nd speed rpm : 500  
Rack travel in m: 13.70...13.90

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 13.70...13.80

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 12.60...12.80  
2nd pressure hPa : 435  
Rack travel in m: 13.30...13.40  
3rd pressure hPa : 410  
Rack travel in m: 12.80...13.00

#### START CUT-OUT

Speed 1/min : 320 (340)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 700  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.5...138.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 104.5...106.5  
1000 s: (102.5...108.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 12.70  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 105.0...115.0  
1000 s: (102.0...118.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6.80...7.00  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.5...18.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 198AG  
  
Injection pump  
Pump designation : PES6A95D41ORS2416  
EP type number : 0 410 896 961  
Governor  
Governor design. : RSV300...1150A8C616D  
L  
Governor no. : 0 420 232 323  
  
Customer-spec. information  
Customer : KHD  
  
Engine : F6L413FR  
  
1st version kW : 113.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve  
: 1 419 992 198  
  
Inlet press., bar : 1.50  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test lines : 1 680 750 014  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1030  
  
Rack travel in mm : 10.30...10.40  
  
Del. quantity cm3/ : 10.3...10.5  
100 s: (10.1...10.7)  
  
Spread cm3 : 0.3  
100 s: (0.6)  
  
2nd speed rpm : 300.0  
Rack travel in mm : 5.9...6.1  
Del. quantity cm3/ : 1.2...1.8  
100 s: (0.9...2.0)  
Spread cm3 : 0.3  
100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1030  
Del. quantity : 103.0...105.0  
1000 : (101.0...107.0)  
Spread cm3 : 3.50  
1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 9.30  
Speed rpm : 1075...1085  
2nd rack travel in: 4.00  
Speed rpm : 1100...1130  
3rd rack travel in: 4.00

Speed rpm : 1135...1165  
4th rack travel in: 1250  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 535...595

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 10.30...10.40  
2nd speed rpm : 500  
Rack travel in m: 10.40...10.50  
4th speed rpm : 750  
Rack travel in m: 10.20...10.30

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.30  
Speed rpm : 1075...1085

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.80...16.20

Remarks:

:

#### APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE 8,4 a  
 Edition : 21.08.92  
 Replaces : 02.89  
 Test oil : ISO-4113

Combination no. : 0 400 876 322

Injection pump  
 Pump designation : PES6A95D410RS2689  
 EP type number : 0 410 896 916  
 Governor  
 Governor design. : RSV400...1000A1C2187  
 L  
 Governor no. : 0 420 232 387

Customer-spec. information  
 Customer : LIEBHERR

Engine : D906 NA

1st version kW : 112.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 40...45

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80  
 : (2.65...2.85)

K07

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 4.00...5.00

## BASIC SETTING

1st speed rpm : 1000

---

Rack travel in mm : 10.40...10.50

---

Del.quantity cm3/ : 8.7...8.9

---

100 s: (8.5...9.1)

---

Spread cm3 : 0.3

---

100 s: (0.6)

---

2nd speed rpm : 400.0  
 Rack travel in mm : 6.3...6.5  
 Del.quantity cm3/ : 1.0...1.6  
 100 s: (0.7...1.8)  
 Spread cm3 : 0.3  
 100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Del.quantity : 87.0...89.0  
 1000 : (85.0...91.0)  
 Spread cm3 : 3.50  
 1000 : (6.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 95...103

Testing:

1st rack travel in: 9.40  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1050...1080  
3rd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1230  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.9

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 400  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 530...590

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 500  
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 77.5...80.5  
1000 s: (75.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 400

K08

Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 10.0...16.0  
1000 s: (7.5...18.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE 8,4 a 5  
 Edition : 03.09.92  
 Replaces : 07.02.89  
 Test oil : ISO-4113

Combination no. : 0 400 876 322E

Injection pump  
 Pump designation : PES6A95D410RS2689  
 EP type number : 0 410 896 916  
 Governor  
 Governor design. : RSV400...1000A1C2187  
 L  
 Governor no. : 0 420 232 387

Customer-spec. information  
 Customer : LIEBHERR

Engine : D906 TB

1st version kW : 120.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80  
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 4.00...5.00

## BASIC SETTING

1st speed rpm : 1000

---

Rack travel in mm : 11.30...11.50

---

Del.quantity cm3/ : 10.2...10.4

---

100 s: (10.0...10.6)

---

Spread cm3 : 0.3

---

100 s: (0.6)

---

2nd speed rpm : 400.0  
 Rack travel in mm : 6.3...6.5  
 Del.quantity cm3/ : 1.0...1.6  
 100 s: (0.7...1.8)

---

Spread cm3 : 0.3  
 100 s: (0.5)

---

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 2.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 980  
 Del.quantity : 102.0...104.0  
 1000 : (100.0...106.0)

---

Spread cm3 : 3.50  
 1000 : (6.00)

---

## RATED SPEED

1st version  
 Control lever  
 position degrees: 89...97

Testing:

1st rack travel in: 10.30  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1030...1060  
3rd rack travel in: 4.00  
Speed rpm : 1055...1085  
4th rack travel in: 1220  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 63...71  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.9

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 400  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 510...570

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 500  
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 105.5...108.5  
1000 s: (103.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 400

K10

Rack travel in mm : 6.30...6.50  
Del.quantity cm3/ : 10.0...16.0  
1000 s: (7.5...18.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE  
Edition : 24.07.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 398  
  
Injection pump  
Pump designation : PES6A100D410RS2754  
EP type number : 0 410 806 002  
Governor  
Governor design. : RSV425...1100A0C2235  
-2L  
Governor no. : 0 420 232 576

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6076TRW06

1st version kW : 98.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 27...29

K11

Prestroke mm : 2.95...3.05  
: (2.90...3.10)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  

---

Rack travel in mm : 9.00...9.10  

---

Del.quantity cm3/ : 8.3...8.5  
100 s: (8.1...8.7)  

---

Spread cm3 : 0.4  
100 s: (0.6)

2nd speed rpm : 425.0  
Rack travel in mm : 5.5...5.7  
Del.quantity cm3/ : 2.6...3.0  
100 s: (2.3...3.2)  
Spread cm3 : 0.6  
100 s: (0.8)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del.quantity : 83.5...85.5  
1000 : (81.5...87.5)  
Spread cm3 : 4.00  
1000 : (6.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 48...56

Testing:

1st rack travel in: 8.00  
Speed rpm : 1145...1155  
2nd rack travel in: 4.00  
Speed rpm : 1200...1210  
3rd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 23...31  
Setting point w/out bumper spring  
Speed rpm : 425  
Rack travel in mm : 5.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 425  
Rack travel in mm : 5.50...5.70

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 650  
Rack travel in m: 9.80...10.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 103.0...107.0  
1000 s: (101.0...109.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.00  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (95.0...125.0)

#### LOW IDLE

Speed rpm : 425  
Rack travel in mm : 5.50...5.70  
Del.quantity cm<sup>3</sup>/ : 26.0...30.0  
1000 s: (23.5...32.5)

Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### Remarks:

: JOHN DEERE # RE51909  
Start-of-delivery mark = 13,5° after  
start of delivery cyl. 1.

Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : STE 10,0 g1  
Edition : 31.07.92  
Replaces : 01.91  
Test oil : ISO-4113

Combination no. : 0 401 846 941

Injection pump  
Pump designation : PE6P110A720RS3243  
EP type number : 0 411 816 770  
Governor  
Governor design. : RQ300/1100PA412-5  
Governor no. : 0 421 801 562

Customer-spec. information  
Customer : SNF

Engine : WD615.63

1st version kW : 204.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm<sup>3</sup>/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 14.60...15.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 164.0...166.0

1000 : (161.0...169.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 15.0

Testing:

1st rack travel in: 11.70

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 4.0

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.50  
Speed rpm : 300  
Rack travel in mm : 3.90...4.10  
Rack travel in mm : 2.00  
Speed rpm : 350...390

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 12.70...12.80

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.90...10.10  
2nd pressure hPa : 500  
Rack travel in m: 11.90...12.00  
3rd pressure hPa : 325  
Rack travel in m: 10.30...10.50

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 172.0...176.0  
1000 s: (169.0...179.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 120.0...122.0  
1000 s: (117.0...125.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 232.0...272.0  
1000 s: (228.0...276.0)  
Rack travel in mm : 17.50...18.50

Remarks:

:  
Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 848 708A

Injection pump  
Pump designation : PE8P110A320LS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQ300/1150PA187-3  
Governor no. : 0 421 801 133

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm<sup>3</sup>/ : 10.4...10.6

100 s: (10.1...10.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del.quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.00...14.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 104.0...106.0

1000 : (101.5...108.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.80

Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300  
Rack travel in mm : 8.3

#### Testing:

Speed rpm : 100  
Minimum rack trave: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.20...8.40  
Rack travel in mm : 2.00  
Speed rpm : 420...460  
Speed rpm : 550  
Maximum rack trave: 1.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm3/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm3 : 5.00  
1000 s: (8.00)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,6 a 5  
Edition : 27.09.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 848 756A  
  
Injection pump  
Pump designation : PE8P110A320LS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQV300...1150PA486-3  
Governor no. : 0 421 813 411

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM422

1st version kW : 184.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 8- 7- 2- 6- 3- 5-  
4- 1

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 750  

---

Rack travel in mm : 11.20...11.40  

---

Del.quantity cm<sup>3</sup>/ : 9.9...10.1  
100 s: (9.6...10.3)  

---

Spread cm<sup>3</sup> : 0.5  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 8.4...8.6  
Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
100 s: (1.1...2.2)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.50...2.00  
2nd speed rpm : 900  
travel mm : 6.40...6.90  
3rd speed rpm : 1206  
travel mm : 8.30...8.80  
4th speed rpm : 1302  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1230  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 750  
Del.quantity : 99.0...101.0  
1000 : (96.5...103.5)

#### RATED SPEED

1st version

Control lever

position degrees: 50...52

Testing:

1st rack travel in: 10.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Testing:

Speed rpm : 100

Minimum rack travel: 9.70

Speed rpm : 300

Rack travel in mm : 8.00...8.20

Rack travel in mm : 2.00

Speed rpm : 410...480

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.00...11.10

2nd speed rpm : 600

Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150

Del. quantity cm<sup>3</sup>/ : 112.0...116.0

1000 s: (109.0...119.0)

Spread cm<sup>3</sup> : 7.00

1000 s: (10.0)

Speed rpm : 600

Del. quantity cm<sup>3</sup>/ : 92.0...96.0

1000 s: (89.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1190...1200

K18

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 b1  
 Edition : 21.08.92  
 Replaces : 02.91  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 343  
 Injection pump  
 Pump designation : PE6P120A32ORS500  
 EP type number : 0 411 826 140  
 Governor  
 Governor design. : RSV250...750P7A507-3  
 Governor no. : 0 421 833 358

Customer-spec. information  
 Customer : DAF

Engine : DKZ 1160

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700  
 Rack travel in mm : 13.80...13.90  
 Del.quantity cm3/ : 24.2...24.4  
 100 s: (23.9...24.7)  
 Spread cm3 : 0.5  
 100 s: (0.9)  
 2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.8  
 100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 700  
 Del.quantity : 242.0...244.0  
 1000 : (239.0...247.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 90...98

Testing:  
 1st rack travel in: 12.80  
 Speed rpm : 750...755  
 2nd rack travel in: 4.00  
 Speed rpm : 780...795  
 4th rack travel in: 950  
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Speed rpm : 250

Rack travel in mm : 6.70...6.90

Rack travel in mm : 2.00

Speed rpm : 260...300

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 750...755

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.70...6.90

Del.quantity cm3/ : 14.0...20.0

1000 s: (11.0...23.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 21.05.92  
Replaces : 04.92  
Test oil : ISO-4113  
Combination no. : 0 401 876 791  
Injection pump  
Pump designation : PE6P110A320LS3859  
EP type number : 0 411 816 784  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9306 TI

1st version kW : 230.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness : 8.00x2.50x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
: (3.55...3.75)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 3- 5- 2- 4

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.10...14.20

Del.quantity cm<sup>3</sup>/ : 18.3...18.5

100 s: (18.0...18.7)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 6.3...6.5

Del.quantity cm<sup>3</sup>/ : 1.9...2.4

100 s: (1.6...2.6)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 183.0...185.0

1000 : (180.5...187.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 96...102

Testing:

1st rack travel in: 13.10

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1080...1110  
3rd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1260  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.9  
Speed rpm : 400  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 520...580

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 14.10...14.20  
2nd speed rpm : 500  
Rack travel in m: 14.10...14.30  
3rd speed rpm : 350  
Rack travel in m: 15.30...15.90

#### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 550  
Pressure hPa : 1200  
Rack travel mm : 14.10...14.20

##### Measurement

Speed 1/min : 550

1st pressure hPa : -  
Rack travel in m: 13.00...13.20  
2nd pressure hPa : 525  
Rack travel in m: 13.80...13.90  
3rd pressure hPa : 475  
Rack travel in m: 13.50...13.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 160.0...162.0  
1000 s: (157.5...164.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 13.10  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 19.0...24.0  
1000 s: (16.5...26.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 26.06.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 878 717  
Injection pump  
Pump designation : PE8P110A320LS3853  
EP type number : 0 411 818 720  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9308 TI

1st version kW : 288.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
: (3.75...3.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 3-  
5- 4

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900  
Rack travel in mm : 14.60...14.70  
Del. quantity cm3/ : 19.6...19.8  
100 s: (19.3...20.1)  
Spread cm3 : 0.4  
100 s: (0.7)

2nd speed rpm : 400.0  
Rack travel in mm : 5.9...6.1  
Del. quantity cm3/ : 1.2...1.8  
100 s: (0.9...2.1)  
Spread cm3 : 0.6  
100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1500  
Del. quantity : 196.0...198.0  
1000 : (193.0...201.0)  
Spread cm3 : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 95...103

Testing:  
1st rack travel in: 13.60  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 980...1020  
3rd rack travel in: 4.00  
Speed rpm : 1020...1040  
4th rack travel in: 1100

Speed rpm : 0.30...1.40

#### LOW IDLE 1

##### Control lever

position degrees: 72...78

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.7

Speed rpm : 400

Rack travel in mm : 5.60...5.80

Rack travel in mm : 2.00

Speed rpm : 430...490

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 14.60...14.70

2nd speed rpm : 500

Rack travel in m: 14.60...14.80

3rd speed rpm : 350

Rack travel in m: 15.80...16.40

#### Aneroid/Altitude

##### Compensator Test

#### 1st version

##### Setting

Speed rpm : 600

Pressure hPa : 1500

Rack travel mm : 14.60...14.70

##### Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 13.60...13.80

2nd pressure hPa : 760

Rack travel in m: 14.20...14.40

3rd pressure hPa : 690

Rack travel in m: 13.90...14.10

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -

Speed rpm : 550

Del.quantity cm3/ : 171.0...173.0

1000 s: (168.0...176.0)

Spread cm3 : 8.00

1000 s: (12.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 13.60

K24

Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...170.0

1000 s: (146.0...174.0)

Rack travel in mm : 20.00...21.00

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 878 717  
Injection pump  
Pump designation : PE8P110A320LS3853-1  
EP type number : 0 411 818 726  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9308 TI

1st version kW : 288.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
: (3.75...3.95)  
Rack travel in mm : 9.00...12.00

K25

Firing order : 1- 8- 7- 2- 6- 3-  
5- 4

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900  
Rack travel in mm : 14.60...14.70  
Del. quantity cm3/ : 19.6...19.8  
100 s: (19.3...20.1)  
Spread cm3 : 0.4  
100 s: (0.7)

2nd speed rpm : 400.0  
Rack travel in mm : 5.8...6.0  
Del. quantity cm3/ : 1.2...1.8  
100 s: (0.9...2.1)  
Spread cm3 : 0.6  
100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1500  
Del. quantity : 196.0...198.0  
1000 : (193.0...201.0)  
Spread cm3 : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 95...103

Testing:  
1st rack travel in: 13.60  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 985...1015

3rd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1100  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 72...78  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.4  
Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.00  
Speed rpm : 490...550

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 14.60...14.70  
2nd speed rpm : 500  
Rack travel in m: 14.60...14.80  
3rd speed rpm : 350  
Rack travel in m: 15.80...16.40

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1500  
Rack travel mm : 14.60...14.70

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 13.60...13.80  
2nd pressure hPa : 760  
Rack travel in m: 14.20...14.40  
3rd pressure hPa : 690  
Rack travel in m: 13.90...14.10

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm3/ : 171.0...173.0  
1000 s: (168.0...176.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

#### 1st version

K26

1mm rack travel less than

full load rack tr: 13.60  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (146.0...174.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.80...6.00  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 6.00  
1000 s: (10.00)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 26.06.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 878 717A  
Injection pump  
Pump designation : PE8P110A320LS3853  
EP type number : 0 411 818 720  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 333 376

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9308 TI

1st version kW : 288.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
: (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 3-  
5- 4

Phasing : 0-45-90-135-180-225-  
270-315

Tolerance + - " : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.60...14.70

Del.quantity cm<sup>3</sup>/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1500

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 13.60

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 980...1020

3rd rack travel in: 4.00  
Speed rpm : 1020...1040  
4th rack travel in: 1100  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 72...78  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.7  
Speed rpm : 400  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 430...490

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 14.60...14.70  
2nd speed rpm : 500  
Rack travel in m: 14.60...14.80  
3rd speed rpm : 350  
Rack travel in m: 15.80...16.40

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1500  
Rack travel mm : 14.60...14.70

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 13.60...13.80  
2nd pressure hPa : 760  
Rack travel in m: 14.20...14.40  
3rd pressure hPa : 690  
Rack travel in m: 13.90...14.10

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 171.0...173.0  
1000 s: (168.0...176.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

#### 1st version

K28

1mm rack travel less than

full load rack tr: 13.60  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)  
Rack travel in mm : 20.00...21.00

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LIE  
Edition : 26.06.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 878 717B  
  
Injection pump  
Pump designation : PE8P110A320LS3853  
EP type number : 0 411 818 720  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376

Customer-spec. information  
Customer : LIEBHERR

Engine : D 9308 T

1st version kW : 255.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
: (3.75...3.95)  
Rack travel in mm : 9.00...12.00

L01

Firing order : 1- 8- 7- 2- 6- 3-  
5- 4

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 900  
Rack travel in mm : 13.40...13.50  
Del.quantity cm3/ : 16.6...16.8  
100 s: (16.3...17.1)  
Spread cm3 : 0.4  
100 s: (0.7)

2nd speed rpm : 400.0  
Rack travel in mm : 5.9...6.1  
Del.quantity cm3/ : 1.2...1.8  
100 s: (0.9...2.1)  
Spread cm3 : 0.6  
100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1500  
Del.quantity : 166.0...168.0  
1000 : (163.0...171.0)  
Spread cm3 : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 96...102

Testing:  
1st rack travel in: 12.40  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 980...1020

3rd rack travel in: 4.00  
Speed rpm : 1020...1040  
4th rack travel in: 1100  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 75...83  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.7  
Speed rpm : 400  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 430...490

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 13.40...13.50  
2nd speed rpm : 500  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 350  
Rack travel in m: 14.60...15.20

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 550  
Pressure hPa : 1500  
Rack travel mm : 13.40...13.50

#### Measurement

Speed 1/min : 550

1st pressure hPa : -  
Rack travel in m: 12.50...12.60  
2nd pressure hPa : 620  
Rack travel in m: 12.90...13.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 152.0...154.0  
1000 s: (149.0...157.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)  
Rack travel in mm : 20.00...21.00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 10,0 d1  
Edition : 31.07.92  
Replaces : 12.90  
Test oil : ISO-4113  
  
Combination no. : 0 402 035 029  
  
Injection pump  
Pump designation : PES5P120A720/3LS528  
EP type number : 0 412 025 022  
Governor  
Governor design. : RQ325/1000PA813-20  
Governor no. : 0 421 801 567

Customer-spec. information  
Customer : MAN

Engine : D2865LF/LU95

1st version kW : 198.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Rack travel in mm : 13.00...14.00  
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.3...4.7

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 215.0...217.0

1000 : (212.0...220.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.60

Speed rpm : 1045...1060  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 4.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.00  
Speed rpm : 325  
Rack travel in mm : 4.40...4.60  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 550  
Rack travel in m: 12.50...12.90  
3rd speed rpm : 825  
Rack travel in m: 12.30...12.50

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.60...11.70

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.00...9.20  
2nd pressure hPa : 150  
Rack travel in m: 9.60...9.70  
3rd pressure hPa : 390  
Rack travel in m: 10.90...11.20

#### START CUT-OUT

Speed 1/min : 245 (265)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000

Del.quantity cm3/ : 215.0...221.0  
1000 s: (212.0...224.0)  
Aneroid pressure h: 1000  
Speed rpm : 550  
Del.quantity cm3/ : 205.0...211.0  
1000 s: (202.0...214.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.0...139.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.30...4.70  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7121  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 5  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9a30  
 Edition : 21.08.92  
 Replaces : 11.88  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 071  
 Injection pump  
 Pump designation : PES6P120A720/3LS470-  
 2  
 EP type number : 0 412 026 050  
 Governor  
 Governor design. : RQ300/1100PA813-3  
 Governor no. : 0 421 801 422

Customer-spec. information  
 Customer : MAN

Engine : D2866TOH

1st version kW : 213.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

L05

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.70...10.80

Del.quantity cm<sup>3</sup>/ : 19.3...19.5

100 s: (19.0...19.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del.quantity cm<sup>3</sup>/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 193.5...195.5

1000 : (190.5...198.5)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 9.30  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 9.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 4.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.30  
Speed rpm : 300  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 385...425

#### TORQUE CONTROL

Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 750  
Rack travel in m: 11.20...11.50  
3rd speed rpm : 980  
Rack travel in m: 11.00...11.20  
4th speed rpm : 1030  
Rack travel in m: 10.50...10.80

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 10.70...10.80

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.50...8.70  
2nd pressure hPa : 240  
Rack travel in m: 9.00...9.20  
3rd pressure hPa : 520  
Rack travel in m: 10.00...10.40

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

L06

Aneroid pressure h: 1000  
Speed rpm : 1100  
Del.quantity cm3/ : 196.5...202.5  
1000 s: (193.5...205.5)  
Aneroid pressure h: 1000  
Speed rpm : 650  
Del.quantity cm3/ : 186.0...192.0  
1000 s: (183.0...195.0)  
Aneroid pressure h: 20  
Speed rpm : 500  
Del.quantity cm3/ : 168.0...180.0  
1000 s: (165.0...183.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.30  
Speed rpm : 1145...1160

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 225.0...245.0  
1000 s: (221.0...249.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.70...4.90  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (9.0...21.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 2-7896

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN  
Edition : 28.06.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 036 077A  
Injection pump  
Pump designation : PES6P120A720/3LS470-  
2  
EP type number : 0 412 026 050  
Governor  
Governor design. : RQ300/1100PA813-6  
Governor no. : 0 421 801 466

Cust. part no. : 3-7167

Customer-spec. information  
Customer : MAN

Engine : D2866TUH/001

1st version kW : 222.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 750  
Rack travel in mm : 11.20...11.30  
Del.quantity cm3/ : 19.5...19.7  
100 s: (19.2...20.0)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 300.0  
Rack travel in mm : 5.2...5.4  
Del.quantity cm3/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm3 : 0.8  
100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed rpm : 750  
Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 750  
Aneroid pressure h: 1000  
Del.quantity : 195.0...197.0  
1000 : (192.0...200.0)  
Spread cm3 : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Setting point:  
Speed rpm : 750  
Rack travel in mm : 15.5

#### Testing:

1st rack travel in: 10.20  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.70  
Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Rack travel in mm : 2.00  
Speed rpm : 390...430

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 11.60...11.70  
2nd speed rpm : 1050  
Rack travel in m: 11.50...11.70

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.20...11.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 270  
Rack travel in m: 9.10...9.20  
3rd pressure hPa : 450  
Rack travel in m: 10.10...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1050

LO8

Del.quantity cm<sup>3</sup>/ : 204.0...208.0  
1000 s: (201.0...211.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 119.0...121.0  
1000 s: (116.0...124.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

#### Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

#### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN 11,9 u5  
Edition : 21.08.92  
Replaces : 12.90  
Test oil : ISO-4113

Combination no. : 0 402 036 743

Injection pump  
Pump designation : PES6P120A720/3LS3255  
EP type number : 0 412 026 739  
Governor  
Governor design. : RQ300/1000PA813-19  
Governor no. : 0 421 801 561

Customer-spec. information  
Customer : MAN

Engine : D2866LFD5

1st version kW : 272.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Rack travel in mm : 14.50...15.50  
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.10...15.20

Del.quantity cm3/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 550

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 244.0...246.0

1000 : (241.0...249.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.10

Speed rpm : 1045...1060  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.0

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.50  
Speed rpm : 300  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 15.10...15.20  
2nd speed rpm : 700  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 15.10...15.20

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.80...12.00  
2nd pressure hPa : 110  
Rack travel in m: 12.10...12.20  
3rd pressure hPa : 470  
Rack travel in m: 13.80...14.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1200  
Speed rpm : 1000  
Del.quantity cm3/ : 241.0...247.0  
1000 s: (238.0...250.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.0...139.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 14.10  
Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.80...5.20  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7037

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MAN  
 Edition : 21.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 036 754  
 Injection pump  
 Pump designation : PES6P120A720/3LS3308  
 EP type number : 0 412 026 759  
 Governor  
 Governor design. : RQ300/1000PA813-19  
 Governor no. : 0 421 801 561

Customer spec. information  
 Customer : MAN

Engine : D2866LF05

1st version kW : 272.0  
 Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Rack travel in mm : 14.50...15.50  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.10...15.20

Del.quantity cm3/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 1.7...2.3  
 100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 550

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 244.0...246.0

1000 : (241.0...249.0)

Spread cm3 : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.10

Speed rpm : 1045...1060  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.0

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.50  
Speed rpm : 300  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 360...400

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve -- 1st version  
1st speed rpm : 1000  
Rack travel in m: 15.10...15.20  
2nd speed rpm : 700  
Rack travel in m: 15.50...15.70

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 15.10...15.20

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
Rack travel in m: 11.80...12.00  
2nd pressure hPa : 110  
Rack travel in m: 12.10...12.20  
3rd pressure hPa : 470  
Rack travel in m: 13.80...14.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1200  
Speed rpm : 1000  
Del.quantity cm3/ : 241.0...247.0  
1000 s: (238.0...250.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del.quantity cm3/ : 134.0...136.0  
1000 s: (131.0...139.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 14.10  
Speed rpm : 1045...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.80...5.20  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.0...26.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

: MAN-NR. 3-7228

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 6  
start of delivery



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 k  
 Edition : 21.08.92  
 Replaces : 05.92  
 Test oil : ISO-4113

Combination no. : 0 402 046 340

Injection pump  
 Pump designation : PES6P120A320RS525  
 EP type number : 0 412 026 058  
 Governor  
 Governor design. : RQV300...1050PA955  
 Governor no. : 0 421 813 856

Customer-spec. information  
 Customer : RVI

Engine : M10SD62045J

1st version kW : 160.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 638 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.40...9.50

Del. quantity cm<sup>3</sup>/ : 13.8...14.0

100 s: (13.5...14.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.7...6.1

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1050

travel mm : 8.00...8.20

2nd speed rpm : 275

travel mm : 0.80...1.20

3rd speed rpm : 430

travel mm : 3.40...4.00

4th speed rpm : 1400

travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 8.10...10.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 138.0...140.0

1000 : (135.0...143.0)

Spread      cm<sup>3</sup> : 5.00  
            1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 298...306

#### Testing:

1st rack travel in: 8.40  
Speed      rpm : 1115...1125  
2nd rack travel in: 4.00  
Speed      rpm : 1175...1205  
4th rack travel in: 1350  
Speed      rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 244...252  
Speed      rpm : 275  
Rack travel in mm : 5.80...6.00

#### CONSTANT REGULATION

Speed      rpm : 310...430

#### START CUT-OUT

Speed      1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed      rpm : 700  
Del.quantity cm<sup>3</sup>/ : 126.0...134.0  
            1000 s: (123.0...137.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8.40  
Speed      rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed      rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
            1000 s: (136.0...164.0)

#### LOW IDLE

Speed      rpm : 275  
Rack travel in mm : 5.70...6.10  
Del.quantity cm<sup>3</sup>/ : 17.0...23.0  
            1000 s: (14.0...26.0)

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Spread      cm<sup>3</sup> : 8.00  
            1000 s: (12.00)

#### Remarks:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AA  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 168.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.00...14.10

Del. quantity cm3/ : 15.9...16.1

100 s: (15.6...16.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del. quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 850

Del. quantity : 159.0...161.0

1000 : (156.5...163.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

### 1st version

#### Testing:

1st rack travel in: 13.00

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AB  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 161.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 15.9...16.1

100 s: (15.6...16.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 159.0...161.0

1000 : (156.5...163.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 13.00

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AC  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 146.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.50...13.60

Del.quantity cm3/ : 14.9...15.1

100 s: (14.6...15.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 149.0...151.0

1000 : (146.5...153.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 12.50

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AD  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 142.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

L21

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.30...13.40

Del.quantity cm3/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 144.0...146.0

1000 : (141.5...148.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 12.30

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 759AE  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : R0900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 154.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 14.7...14.9

100 s: (14.4...15.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 147.0...149.0

1000 : (144.5...151.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 12.40

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 759AF  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 147.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 14.7...14.9

100 s: (14.4...15.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 147.0...149.0

1000 : (144.5...151.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 12.40

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.40...13.50

## START CUT-OUT

Speed 1/min : 750 (0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AG  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 140.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness : 6.00X1.50X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 14.7...14.9

100 s : (14.4...15.1)

Spread cm3 : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s : (1.0...2.1)

Spread cm3 : 0.4

100 s : (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 147.0...149.0

1000 : (144.5...151.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 12.40

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 759AH

Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 130.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00

MO1

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.70...12.80

Del.quantity cm<sup>3</sup>/ : 12.9...13.1

100 s: (12.6...13.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 129.0...131.0

1000 : (126.5...133.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 11.70

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 21.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 759AI  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQ900PA738  
Governor no. : 0 421 801 278

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 123.0  
Rated speed : 1800

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 12.3...12.5

100 s: (12.0...12.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 123.0...125.0

1000 : (120.5...127.5)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Testing:

1st rack travel in: 11.50

Speed rpm : 900...905

2nd rack travel in: 5.50

Speed rpm : 936...945

4th rack travel in: 1050

Speed rpm : 0.00...1.00

## START CUT-OUT

Speed 1/min : 750 (0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 900...905

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 783AA  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

## Customer-spec. information

Customer : KHD  
Engine : 8F6L513R

1st version kW : 167.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

M05

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 13.00...13.10  
Del. quantity cm<sup>3</sup>/ : 14.2...14.4  
100 s : (13.9...14.6)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s : (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.30...1.40  
2nd speed rpm : 390  
travel mm : 2.40...2.70  
3rd speed rpm : 460  
travel mm : 2.80...3.20  
4th speed rpm : 1190  
travel mm : 8.40...8.50  
5th speed rpm : 1290  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1190  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Aneroid pressure h : 1000  
Del. quantity : 142.0...144.0  
1000 : (139.5...146.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.00  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1280...1310  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...480

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.00...13.10  
2nd speed rpm : 600  
Rack travel in m: 13.00...13.20

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 1000  
Rack travel mm : 13.00...13.10

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 430  
Rack travel in m: 12.90...13.00  
3rd pressure hPa : 400  
Rack travel in m: 12.40...12.60

## START CUT-OUT

Speed 1/min : 250 (270)

MO6

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 783AB  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 158.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : (0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 12.70...12.80  
Del.quantity cm<sup>3</sup>/ : 13.6...13.8  
100 s: (13.3...14.0)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.30...1.40  
2nd speed rpm : 390  
travel mm : 2.40...2.70  
3rd speed rpm : 460  
travel mm : 2.80...3.20  
4th speed rpm : 1190  
travel mm : 8.40...8.50  
5th speed rpm : 1290  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1190  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Del.quantity : 136.0...138.0  
1000 : (133.5...140.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack trave: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...480

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 600  
Rack travel in m: 12.70...12.90

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

MOD8

On activation of the starting solenoid,  
the start position must be reached.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 783AC  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 150.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.40...12.50

Del. quantity cm<sup>3</sup>/ : 13.0...13.2

100 s : (12.7...13.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.30...1.40

2nd speed rpm : 390  
travel mm : 2.40...2.70

3rd speed rpm : 460  
travel mm : 2.80...3.20

4th speed rpm : 1190  
travel mm : 8.40...8.50

5th speed rpm : 1290  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 130.0...132.0

1000 : (127.5...134.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

### Testing:

1st rack travel in: 11.40  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 83...91

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 320...480

## TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.40...12.50  
2nd speed rpm : 600  
Rack travel in m: 12.40...12.60

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.40  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

M10

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 783AD  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 147.0  
Rated speed : -

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

M11

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.30...12.40

Del. quantity cm<sup>3</sup>/ : 12.7...12.9

100 s : (12.4...13.1)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.30...1.40

2nd speed rpm : 390

travel mm : 2.40...2.70

3rd speed rpm : 460

travel mm : 2.80...3.20

4th speed rpm : 1190

travel mm : 8.40...8.50

5th speed rpm : 1290

travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 127.0...129.0

1000 : (124.5...131.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1265...1295  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 320...480

## TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 600  
Rack travel in m: 12.30...12.50

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.30  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 783AE  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RGV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 142.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.30...1.40

2nd speed rpm : 390  
travel mm : 2.40...2.70

3rd speed rpm : 460  
travel mm : 2.80...3.20

4th speed rpm : 1190  
travel mm : 8.40...8.50

5th speed rpm : 1290  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 122.0...124.0

1000 : (119.5...126.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.10  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1260...1290  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 320...480

## TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 600  
Rack travel in m: 12.10...12.30

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

M14

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 783AF

Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 138.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

M15

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 12.0...12.2

100 s : (11.7...12.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.30...1.40

2nd speed rpm : 390  
travel mm : 2.40...2.70

3rd speed rpm : 460  
travel mm : 2.80...3.20

4th speed rpm : 1190  
travel mm : 8.40...8.50

5th speed rpm : 1290  
travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 120.0...122.0

1000 : (117.5...124.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1250...1290  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...480

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 600  
Rack travel in m: 12.00...12.20

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.00  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 31.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 783AG  
 Injection pump  
 Pump designation : PES6P110A72ORS3104  
 EP type number : 0 412 016 712  
 Governor  
 Governor design. : RQV300...1150PA850  
 Governor no. : 0 421 813 598

## Customer spec. information

Customer : KHD  
 Engine : BF6L513R

1st version kW : 134.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 11.80...11.90  
 Del. quantity cm<sup>3</sup>/ : 11.6...11.8  
 100 s : (11.3...12.0)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.6...7.8  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s : (1.3...2.4)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.30...1.40  
 2nd speed rpm : 390  
 travel mm : 2.40...2.70  
 3rd speed rpm : 460  
 travel mm : 2.80...3.20  
 4th speed rpm : 1190  
 travel mm : 8.40...8.50  
 5th speed rpm : 1290  
 travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1190  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del. quantity : 116.0...118.0  
 1000 : (113.5...120.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1255...1285  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...480

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 11.80...11.90  
2nd speed rpm : 600  
Rack travel in m: 11.80...12.00

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 783AH

Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850  
Governor no. : 0 421 813 598

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 170.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.10...13.20

Del. quantity cm<sup>3</sup>/ : 14.4...14.6

100 s: (14.1...14.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.30...1.40

2nd speed rpm : 390

travel mm : 2.40...2.70

3rd speed rpm : 460

travel mm : 2.80...3.20

4th speed rpm : 1190

travel mm : 8.40...8.50

5th speed rpm : 1290

travel mm : 9.40...9.70

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1100

Del. quantity : 144.0...146.0

1000 : (141.5...148.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 12.10

Speed rpm : 1190...1200

2nd rack travel in: 5.50

Speed rpm : 1280...1310

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 83...91

Testing:

Speed rpm : 100

Minimum rack travel: 9.40

Speed rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 320...480

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 13.10...13.20

2nd speed rpm : 600

Rack travel in m: 13.10...13.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 1100

Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 430

Rack travel in m: 12.90...13.00

3rd pressure hPa : 370

Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 250 (270)

M20

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm<sup>3</sup>/ : 123.0...125.0

1000 s: (120.5...127.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : D 402 046 787AA  
  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : D 412 016 712  
Governor  
Governor design. : RQV375...1000PA862  
Governor no. : D 421 813 625

Customer-spec. information  
Customer : KHD

Engine : BF6L513R

1st version kW : 142.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : D 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.70...12.80

Del. quantity cm<sup>3</sup>/ : 12.9...13.1

100 s: (12.6...13.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 375.0

Rack travel in mm : 5.9...6.1

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 375  
travel mm : 0.90...1.10

2nd speed rpm : 410  
travel mm : 1.60...1.90

3rd speed rpm : 550  
travel mm : 2.80...3.10

4th speed rpm : 1050  
travel mm : 8.50...8.60

5th speed rpm : 1110  
travel mm : 9.50...9.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 129.0...131.0

1000 : (126.5...133.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

#### RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.70

Speed rpm : 1040...1050

2nd rack travel in: 5.50

Speed rpm : 1075...1105

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: ?

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 375

Rack travel in mm : 5.90...6.10

#### CONSTANT REGULATION

Speed rpm : 375...480

#### TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.70...12.80

2nd speed rpm : 650

Rack travel in m: 12.90...13.00

#### START CUT-OUT

Speed 1/min : 310 (330)

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 136.0...140.0

1000 s: (133.0...143.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100

M22

Del.quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Note remarks

```
Prestroke mm      : 2.80...2.90
                   : (2.75...2.95)
Rack travel in mm  : 9.00...12.00
Firing order       : 1- 5- 3- 6- 2- 4
```

1000 : (7.50)

## RATED SPEED

1st version

Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 11.40

Speed rpm : 1040...1050

2nd rack travel in: 5.50

Speed rpm : 1070...1100

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: ?

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 375

Rack travel in mm : 5.90...6.10

## CONSTANT REGULATION

Speed rpm : 375...480

## TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.40...12.50

2nd speed rpm : 650

Rack travel in m: 12.60...12.70

## START CUT-OUT

Speed 1/min : 310 (330)

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 131.0...135.0

1000 s: (128.0...138.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1040...1050

## STARTING FUEL DELIVERY

Speed rpm : 100

M24

Del.quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 794AA  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA862-1  
Governor no. : 0 421 813 684

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 180.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 13.70...13.80

Del.quantity cm<sup>3</sup>/ : 14.7...14.9

100 s: (14.4...15.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.50

2nd speed rpm : 450

travel mm : 2.60...3.20

3rd speed rpm : 700

travel mm : 4.80...5.40

4th speed rpm : 1110

travel mm : 7.90...8.10

5th speed rpm : 1230

travel mm : 9.00...9.40

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 147.0...149.0

1000 : (144.5...151.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 115...123

### Testing:

1st rack travel in: 12.70  
Speed rpm : 1110...1120  
2nd rack travel in: 5.50  
Speed rpm : 1195...1225  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 82...90

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.10  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 300...480

## TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 13.70...13.80  
2nd speed rpm : 600  
Rack travel in m: 13.70...13.80

## FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.70  
Speed rpm : 1110...1120

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 799AA  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-1  
Governor no. : 0 421 813 708

Customer spec. information  
Customer : KHD

Engine : BF6L413FR/513R

1st version kW : 158.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 13.20...13.30  
Del. quantity cm<sup>3</sup>/ : 13.9...14.1  
100 s : (13.6...14.3)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.1  
100 s : (1.4...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 400  
travel mm : 2.70...3.30  
3rd speed rpm : 600  
travel mm : 4.20...4.80  
4th speed rpm : 1120  
travel mm : 8.40...8.60  
5th speed rpm : 1245  
travel mm : 9.60...10.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Aneroid pressure h : 1010  
Del. quantity : 139.0...141.0  
1000 : (136.5...143.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 12.20

Speed rpm : 1115...1125

2nd rack travel in: 5.50

Speed rpm : 1210...1240

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 85...93

Testing:

Speed rpm : 100

Minimum rack travel: 2.60

Speed rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 300...490

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1075

Rack travel in m: 13.20...13.30

2nd speed rpm : 600

Rack travel in m: 13.20...13.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 1010

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 400

Rack travel in m: 13.00...13.10

3rd pressure hPa : 340

Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 240 (260)

M28

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm<sup>3</sup>/ : 123.0...125.0

1000 s: (120.5...127.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 799AB  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-1  
Governor no. : 0 421 813 708

Customer-spec. information  
Customer : KHD

Engine : BF6L413FR/513R

1st version kW : 150.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 12.90...13.00  
Del. quantity cm<sup>3</sup>/ : 13.3...13.5  
100 s: (13.0...13.7)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)  
  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.1  
100 s: (1.4...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 400  
travel mm : 2.70...3.30  
3rd speed rpm : 600  
travel mm : 4.20...4.80  
4th speed rpm : 1120  
travel mm : 8.40...8.60  
5th speed rpm : 1245  
travel mm : 9.60...10.00

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Aneroid pressure h: 920  
Del. quantity : 133.0...135.0  
1000 : (130.5...137.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.90  
Speed rpm : 1115...1125  
2nd rack travel in: 5.50  
Speed rpm : 1205...1235  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 85...93

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.60  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 12.90...13.00  
2nd speed rpm : 600  
Rack travel in m: 12.90...13.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 920  
Rack travel mm : 12.90...13.00

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 370  
Rack travel in m: 12.80...12.90  
3rd pressure hPa : 320  
Rack travel in m: 12.50...12.60

## START CUT-OUT

Speed 1/min : 240 (260)

NO2

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1115...1125

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 799AC  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-1  
Governor no. : 0 421 813 708

Customer-spec. information  
Customer : KHD

Engine : BF6L413FR/513R

1st version kW : 142.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 12.60...12.70  
Del. quantity cm<sup>3</sup>/ : 12.8...13.0  
100 s : (12.5...13.2)

Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.1  
100 s : (1.4...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

(B) Setting of injection pump  
with governor

GUIDE SLEEVE TRAVEL  
1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 400  
travel mm : 2.70...3.30  
3rd speed rpm : 600  
travel mm : 4.20...4.80  
4th speed rpm : 1120  
travel mm : 8.40...8.60  
5th speed rpm : 1245  
travel mm : 9.60...10.00

GUIDE SLEEVE POSITION  
Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Aneroid pressure h : 880  
Del. quantity : 128.0...130.0  
1000 : (125.5...132.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.60

Speed rpm : 1115...1125

2nd rack travel in: 5.50

Speed rpm : 1200...1230

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 85...93

Testing:

Speed rpm : 100

Minimum rack travel: 9.60

Speed rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 300...490

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1075

Rack travel in m: 12.60...12.70

2nd speed rpm : 600

Rack travel in m: 12.60...12.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 880

Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 370

Rack travel in m: 12.80...12.90

3rd pressure hPa : 320

Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 240 (260)

NO4

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 450

Del.quantity cm<sup>3</sup>/ : 123.0...125.0

1000 s: (120.5...127.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 801AA  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RGV300...1150PA850-2  
Governor no. : 0 421 813 718

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 200.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
Rack travel in mm : 13.90...14.10  
Del.quantity cm<sup>3</sup>/ : 16.2...16.4  
                  100 s : (15.9...16.6)  
Spread cm<sup>3</sup> : 0.4  
                  100 s : (0.7)  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
                  100 s : (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
                  100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 350  
travel mm : 1.90...2.50  
3rd speed rpm : 650  
travel mm : 4.20...4.80  
4th speed rpm : 1195  
travel mm : 8.40...8.60  
5th speed rpm : 1320  
travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1190  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Aneroid pressure h : 1000  
Del.quantity : 162.0...164.0  
                  1000 : (159.5...166.5)  
Spread cm<sup>3</sup> : 4.00  
                  1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.90...14.00  
2nd speed rpm : 700  
Rack travel in m: 14.10...14.20  
3rd speed rpm : 1000  
Rack travel in m: 13.90...14.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 1000  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 480  
Rack travel in m: 13.60...13.70  
3rd pressure hPa : 370  
Rack travel in m: 12.70...12.90

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 700  
Del.quantity cm3/ : 166.0...170.0  
1000 s: (163.0...173.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 801AB

Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850-2  
Governor no. : 0 421 813 718

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 199.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

N07

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.90...14.00

Del. quantity cm<sup>3</sup>/ : 16.1...16.3

100 s: (15.8...16.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 350

travel mm : 1.90...2.50

3rd speed rpm : 650

travel mm : 4.20...4.80

4th speed rpm : 1195

travel mm : 8.40...8.60

5th speed rpm : 1320

travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del. quantity : 161.0...163.0

1000 : (158.5...165.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.90...14.00  
2nd speed rpm : 700  
Rack travel in m: 14.10...14.20  
3rd speed rpm : 1000  
Rack travel in m: 13.90...14.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 1000  
Rack travel mm : 13.90...14.00

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 480  
Rack travel in m: 13.60...13.70  
3rd pressure hPa : 370  
Rack travel in m: 12.70...12.90

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 700  
Del.quantity cm3/ : 165.0...169.0  
1000 s: (162.0...172.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.90  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 801AC  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850-2  
Governor no. : 0 421 813 718

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 188.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

N09

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
  
Rack travel in mm : 13.50...13.60  
  
Del. quantity cm<sup>3</sup>/ : 15.3...15.5  
100 s: (15.0...15.7)  
  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s: (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40  
2nd speed rpm : 350  
travel mm : 1.90...2.50  
3rd speed rpm : 650  
travel mm : 4.20...4.80  
4th speed rpm : 1195  
travel mm : 8.40...8.60  
5th speed rpm : 1320  
travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1190  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1150  
Aneroid pressure h: 960  
Del. quantity : 153.0...155.0  
1000 : (150.5...157.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.50  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.50...13.60  
2nd speed rpm : 700  
Rack travel in m: 13.70...13.80  
3rd speed rpm : 1000  
Rack travel in m: 13.50...13.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 960  
Rack travel mm : 13.50...13.60

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 420  
Rack travel in m: 13.20...13.30  
3rd pressure hPa : 330  
Rack travel in m: 12.50...12.70

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 600  
Speed rpm : 700  
Del.quantity cm3/ : 158.0...162.0  
1000 s: (155.0...165.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.50  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 801AD  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850-2  
Governor no. : 0 421 813 718

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 180.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.20...13.30

Del. quantity cm<sup>3</sup>/ : 14.9...15.1

100 s: (14.6...15.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.20...1.40

2nd speed rpm : 350  
travel mm : 1.90...2.50

3rd speed rpm : 650  
travel mm : 4.20...4.80

4th speed rpm : 1195  
travel mm : 8.40...8.60

5th speed rpm : 1320  
travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 910

Del. quantity : 149.0...151.0

1000 : (146.5...153.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.20  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.20...13.30  
2nd speed rpm : 700  
Rack travel in m: 13.40...13.50  
3rd speed rpm : 1000  
Rack travel in m: 13.20...13.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 910  
Rack travel mm : 13.20...13.30

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.10...13.20  
3rd pressure hPa : 330  
Rack travel in m: 12.50...12.70

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 540  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 154.0...158.0  
1000 s: (151.0...161.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.20  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 801AE  
  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850-2  
Governor no. : 0 421 813 718

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 170.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del. quantity cm<sup>3</sup>/ : 14.2...14.4

100 s : (13.9...14.6)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 350

travel mm : 1.90...2.50

3rd speed rpm : 650

travel mm : 4.20...4.80

4th speed rpm : 1195

travel mm : 8.40...8.60

5th speed rpm : 1320

travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h : 850

Del. quantity : 142.0...144.0

1000 : (139.5...146.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 11.90  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1260...1290  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...490

TORQUE CONTROL  
Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.90...13.00  
2nd speed rpm : 700  
Rack travel in m: 13.10...13.20  
3rd speed rpm : 1000  
Rack travel in m: 12.90...13.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 850  
Rack travel mm : 12.90...13.00

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 375  
Rack travel in m: 12.90...13.00  
3rd pressure hPa : 330  
Rack travel in m: 12.50...12.70

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 520  
Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 147.0...151.0  
1000 s: (144.0...154.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del. quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
 Edition : 31.08.92  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 801AF  
 Injection pump  
 Pump designation : PES6P110A72ORS3104  
 EP type number : 0 412 016 712  
 Governor  
 Governor design. : RQV300...1150PA850-2  
 Governor no. : 0 421 813 718

Customer-spec. information  
 Customer : KHD

Engine : BF6L513RC

1st version kW : 165.0  
 Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 12.70...12.80  
 Del.quantity cm<sup>3</sup>/ : 13.9...14.1  
 100 s: (13.6...14.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)  
 2nd speed rpm : 300.0  
 Rack travel in mm : 7.6...7.8  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.4)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.40  
 2nd speed rpm : 350  
 travel mm : 1.90...2.50  
 3rd speed rpm : 650  
 travel mm : 4.20...4.80  
 4th speed rpm : 1195  
 travel mm : 8.40...8.60  
 5th speed rpm : 1320  
 travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1190  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Aneroid pressure h: 835  
 Del.quantity : 139.0...141.0  
 1000 : (136.5...143.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 118...126

### Testing:

1st rack travel in: 11.70  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1255...1285  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 82...90

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.30  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 300...490

## TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 700  
Rack travel in m: 12.90...13.00

Aneroid/Altitude  
Compensator Test

## 1st version

### Setting

Speed rpm : 450  
Pressure hPa : 835  
Rack travel mm : 12.70...12.80

### Measurement

Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 345  
Rack travel in m: 12.60...12.70  
3rd pressure hPa : 330  
Rack travel in m: 12.40...12.60

## FUEL DELIVERY CHARACTERISTICS

## 1st version

N16

Aneroid pressure h: 440  
Speed rpm : 700  
Del.quantity cm3/ : 144.0...148.0  
1000 s: (141.0...151.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.70  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 805AA  
  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-3  
Governor no. : 0 421 813 743

Customer-spec. information  
Customer : KHD

Engine : BF6L413FRC/513RC

1st version kW : 188.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

N17

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 13.50...13.60

Del. quantity cm<sup>3</sup>/ : 15.3...15.5

100 s : (15.0...15.7)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.40

2nd speed rpm : 450  
travel mm : 2.60...3.20

3rd speed rpm : 650  
travel mm : 4.70...5.30

4th speed rpm : 1110  
travel mm : 8.20...8.40

5th speed rpm : 1250  
travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h : 960

Del. quantity : 153.0...155.0

1000 : (150.5...157.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 12.50

Speed rpm : 1105...1115

2nd rack travel in: 5.50

Speed rpm : 1200...1230

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 84...92

Testing:

Speed rpm : 100

Minimum rack travel: 9.40

Speed rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 300...520

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1075

Rack travel in m: 13.50...13.60

2nd speed rpm : 700

Rack travel in m: 13.70...13.80

3rd speed rpm : 900

Rack travel in m: 13.50...13.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 450

Pressure hPa : 960

Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 450

1st pressure hPa : -

Rack travel in m: 12.30...12.50

2nd pressure hPa : 455

Rack travel in m: 13.40...13.50

3rd pressure hPa : 360

Rack travel in m: 12.60...12.80

START CUT-OUT

Speed 1/min : 250 (270)

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 670

Speed rpm : 700

Del. quantity cm<sup>3</sup>/ : 158.0...162.0

1000 s: (155.0...165.0)

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm<sup>3</sup>/ : 123.0...125.0

1000 s: (120.5...127.5)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 1105...1115

## STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 402 046 805AB

Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-3  
Governor no. : 0 421 813 743

Customer-spec. information  
Customer : KHD

Engine : BF6L413FRC/513RC

1st version kW : 180.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 13.10...13.20

Del. quantity cm<sup>3</sup>/ : 14.7...14.9

100 s: (14.4...15.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.40

2nd speed rpm : 450

travel mm : 2.60...3.20

3rd speed rpm : 650

travel mm : 4.70...5.30

4th speed rpm : 1110

travel mm : 8.20...8.40

5th speed rpm : 1250

travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h: 900

Del. quantity : 147.0...149.0

1000 : (144.5...151.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

### Testing:

1st rack travel in: 12.10  
Speed rpm : 1105...1115  
2nd rack travel in: 5.50  
Speed rpm : 1195...1225  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 84...92

### Testing:

Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 300...520

## TORQUE CONTROL

Dimension a mm : 0.10  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 13.10...13.20  
2nd speed rpm : 700  
Rack travel in m: 13.20...13.30

Aneroid/Altitude  
Compensator Test

## 1st version

Setting  
Speed rpm : 450  
Pressure hPa : 900  
Rack travel mm : 13.10...13.20

## Measurement

Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 410  
Rack travel in m: 12.90...13.10  
3rd pressure hPa : 340  
Rack travel in m: 12.40...12.60

## START CUT-OUT

Speed 1/min : 250 (270)

N20

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Aneroid pressure h: 600  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 147.0...151.0  
1000 s: (144.0...154.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

### 1st version

1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1105...1115

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 805AC  
Injection pump  
Pump designation : PES6P110A720RS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1075PA850-3  
Governor no. : 0 421 813 743

Customer-spec. information  
Customer : KHD

Engine : BF6L413FRC/513RC

1st version kW : 170.0  
Rated speed : 2050

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1075  
Rack travel in mm : 12.90...13.00  
Del. quantity cm<sup>3</sup>/ : 13.9...14.1  
100 s : (13.6...14.3)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)  
2nd speed rpm : 300.0  
Rack travel in mm : 7.6...7.8  
Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
100 s : (1.3...2.4)  
Spread cm<sup>3</sup> : 0.4  
100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.40  
2nd speed rpm : 450  
travel mm : 2.60...3.20  
3rd speed rpm : 650  
travel mm : 4.70...5.30  
4th speed rpm : 1110  
travel mm : 8.20...8.40  
5th speed rpm : 1250  
travel mm : 9.50...9.90

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1140  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1075  
Aneroid pressure h : 850  
Del. quantity : 139.0...141.0  
1000 : (136.5...143.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.90  
Speed rpm : 1105...1115  
2nd rack travel in: 5.50  
Speed rpm : 1190...1220  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...520

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 12.90...13.00  
2nd speed rpm : 700  
Rack travel in m: 12.90...13.00

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 850  
Rack travel mm : 12.90...13.00

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 360  
Rack travel in m: 12.70...12.80  
3rd pressure hPa : 340  
Rack travel in m: 12.40...12.60

## START CUT-OUT

Speed 1/min : 250 (270)

N22

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 490  
Speed rpm : 700  
Aneroid pressure h: -  
Speed rpm : 450  
Del. quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1105...1115

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD  
Edition : 31.08.92  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 402 046 806AA  
  
Injection pump  
Pump designation : PES6P110A72ORS3104  
EP type number : 0 412 016 712  
Governor  
Governor design. : RQV300...1150PA850-4  
Governor no. : 0 421 813 745

Customer-spec. information  
Customer : KHD

Engine : BF6L513RC

1st version kW : 188.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.50...13.60

Del. quantity cm<sup>3</sup>/ : 15.3...15.5

100 s : (15.0...15.7)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.40

2nd speed rpm : 450

travel mm : 2.60...3.20

3rd speed rpm : 650

travel mm : 3.30...3.90

4th speed rpm : 1195

travel mm : 8.30...8.50

5th speed rpm : 1330

travel mm : 9.70...10.10

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h : 960

Del. quantity : 153.0...155.0

1000 : (150.5...157.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.50  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 84...92

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

## CONSTANT REGULATION

Speed rpm : 300...550

## TORQUE CONTROL

Dimension a mm : 0.20  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 13.50...13.60  
2nd speed rpm : 700  
Rack travel in m: 13.70...13.80  
3rd speed rpm : 1000  
Rack travel in m: 13.50...13.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 450  
Pressure hPa : 960  
Rack travel mm : 13.50...13.60

Measurement  
Speed 1/min : 450

1st pressure hPa : -  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 400  
Rack travel in m: 13.10...13.20  
3rd pressure hPa : 330  
Rack travel in m: 12.50...12.70

## START CUT-OUT

Speed 1/min : 250 (270)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 600  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 158.0...162.0  
1000 s: (155.0...165.0)  
Aneroid pressure h: -  
Speed rpm : 450  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.5...127.5)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.50  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

Note remarks

```
Prestroke mm      : 2.80...2.90
                  : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order      : 1- 5- 3- 6- 2- 4
```

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 119...127

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1270...1300  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 89...97

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...520

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.70...12.80  
2nd speed rpm : 600  
Rack travel in m: 12.70...12.90

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

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On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Combine-harvester

Note remarks

```
Prestroke mm      : 2.80...2.90
                   : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order      : 1- 5- 3- 6- 2- 4
```

```
1st version
Speed      rpm : 1150
Del.quantity 1000 : (123.0...125.0)
Spread      cm3 : 4.00
            1000 : (7.50)
```

## RATED SPEED

1st version  
Control lever  
position degrees: 119...127

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1190...1200  
2nd rack travel in: 5.50  
Speed rpm : 1260...1290  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 89...97

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.40  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 320...520

TORQUE CONTROL  
Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 600  
Rack travel in m: 12.00...12.20

## START CUT-OUT

Speed 1/min : 250 (270)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.00  
Speed rpm : 1190...1200

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...200.0  
1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

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On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Combine-harvester